AMERICAN GAS ASSOCIATION MONTHLY

The Gas Industry at a Century of Progress Exposition

CHARLES W. PERSON

30,000 Refrigerators

E. J. DEVLIN

Industry's Outlook

ARTHUR HEWITT

Electrolux Introduces Air-Cooled Refrigerator

F. E. SELLMAN

Executive Evaluation Of Sales Activities

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The Story of Industrial Gas Told by Window Displays

STUART BRATESMAN

April, 1933

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of the
Annual A.G.A. Convention

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WHERE GAS INDUSTRY WILL BECKON VISITORS

HERE is shown architect's rendition of Home Planning Hall, the exhibit centerpiece of the Home and Industrial Arts Group. This large building faces Leif Eriksen Drive, the exposition's main thoroughfare, and provides 47,200 feet of exhibit space. A south annex to the building is called Gas Industry Hall.

AMERICAN GAS ASSOCIATION MONTHLY

Allyn B. Tunis, Editor

VOLUME XV | APRIL, 1933 | NUMBER 4

The Gas Industry At a Century of Progress

By Charles W. Person

TWO months hence, on June 1, Chicago's great Century of Progress Exposition will open its gates and for 150 days thereafter, or until closing day November 1, the story of the most dramatic of all past centuries, 1833-1933, will be revealed in a manner unforgettable to all who witness it.

The occasion for the Exposition is the celebration of Chicago's centenary. The basic theme of the thousands of exhibits that will be housed in buildings covering some 420 acres of land recovered from Lake Michigan, will be man's mastery over nature, with science and industry dominating the picture.

This year's exposition will be no drab and uninteresting presentation but a vivid, swift moving spectacle. The displays will be dynamic, and wherever possible motion and animation will be utilized to provide a mental enriching and personally diverting experience for the visitor. The endeavor is to depict actual processes of fabrication or manufacturing rather than motionless finished products, and gas fuel will be used in some of the larger industrial exhibits to accomplish this purpose.

In the face of a series of obstacles unprecedented in the building of a world's fair, the citizens of Chicago have gone resolutely ahead with their original plans and in so doing have demonstrated a determination and courageousness that have incited the wonder and admiration of the entire nation. The result is that today the greatest exposition project ever conceived is solvent and stands upon its own feet; with a million dollars of cash in the banks, with $3,000,000 of exhibit and concession space sold, with construction plans strictly up to schedule—and all of this accomplished without a dollar of subsidy or a levy against the taxpayer. That is Chicago's performance in living up to its declaration of "I Will."

In June of last year, the fair grounds were thrown open to the public for a pre-view, the admission charge being 10 cents. To date more than 800,000 persons have visited the site and have come away with doubt dispelled and with the belief that the finished exposition, when viewed by 50,000,000 persons, as is expected, will help to pull the country out of the depression doldrums and aid in putting it definitely back on the road to recovery.

With but few exceptions, world's fairs have always stimulated inventive thought and have ushered in new developments.

The Philadelphia Centennial of 1876 introduced the forerunner of the steel building-frame. Here, also occurred the first public demonstration of cake baking in the oven of a gas stove and the first large-scale use of the Welsbach gas burner.

The Chicago Columbian Exposition of 1893 made every villager familiar with European decorative architecture, with the result that this influence dominated American structures for thirty years afterward. The gas motor street railway cars of the North Chicago Company were the sensation of the day to the gas men in attendance at the White City of 1893. Gas engines, gas "coffee boilers," glorified gas ranges of cast iron and nickel and some of the first models of space heaters were featured. The mechanical gadgets shown at this earlier fair resulted in many important inventions contributing to our present mechanized world.

Comparable influences may be exerted by this year's Century of Progress. This is particularly likely to happen in the field of construction, for in its utilization of new materials and its novel adaptations of familiar ones, the exposition provides striking evidence of what can be accomplished.

The architecture, described by some as "daringly different" and by others

as "honest and original" is devoid of ornamentation and emphasizes plane surfaces and mass effects. Most of the exhibition buildings are windowless, due to the phenomenal advances made in artificial lighting, ventilation, heating and air conditioning. Furthermore, the economical construction achieved in the exposition buildings may find its counterpart in housing practices, a development in which the gas industry is vitally interested. In both buildings and model homes shop-fabrication of units, long discussed but infrequently practiced, has demonstrated its worth. This, too, may marshal in a new trend, thus giving promise that Chicago's exposition may furnish a starting point for a further elevation of living standards.

The participation of the gas industry in this greatest of all industrial shows will be an important and diversified one. There will be 26,150 feet of gas mains laid before the fair opens, consisting of 1,500 feet of 12-inch main, 5,300 feet of 10-inch, 1,250 feet of 6-inch, 14,600 feet of 4-inch, 2,000 feet of 3-inch, and 1,500 feet of 2-inch. All mains are of standard steel, are coated and Dressler couplings are used throughout. In addition to the above, 3,000 feet of old 12-inch main that brings in the gas to the fair grounds proper has been leak-clamped.

The gas supply comes from a 30-inch medium-pressure line entering the grounds at 23rd Street, from which point it is graduated down to where 1- to 3-inch services enter the buildings. The main-laying work made it necessary to tunnel under the Illinois Central tracks and to cut through an old breakwater of rock and install a 6-inch main under the bridge connecting the mainland with Northerly Island.

The first structure to be erected on the fair grounds was the Administration Building, 334 feet long with an "E" shaped floor plan, the north and south wings being 120 feet, and the central wing 140 feet. This building is completely insulated and is heated entirely by gas, the plant consisting of three 22-section Bryant boilers which supply 17,808 square feet of steam radiation. The heating plant is installed in three separate zones, one for each wing, each independently controlled by automatic valves and thermostats.

Gas fuel will be used for cooking, baking and water heating wherever eating facilities are to be found on the exposition grounds, starting with a string of ninety-five sandwich and potato chip stands and including the largest restaurants such as Ann Rutledge Tavern, Edward's Rancho, Victor Vienna Garden Cafe, the Blue Ribbon Restaurant and Old Heidelberg Inn, the two last named accommodating 27,500 persons a day.

In the realm of the "live" industrial exhibits where it is planned to fabricate units on the spot and transform raw material to finished product, gas fuel and the latest gas-using equipment will be shown. It is hoped to publish details of these installations later.

The chief point of attraction for members of the gas industry will be that portion of the grounds known as the Home and Industrial Arts Group —a considerable area comprising a large and important part of the exposition picture. Dominating this group will be Home Planning Hall, a building fronting on Leif Eriksen Drive, the exposition's main thoroughfare, and providing 47,200 feet of exhibit space. A south annex to the building is called Gas Industry Hall.

Developments in heating, plumbing, air-conditioning and household equipment and appliances will be featured in the building as a whole. There will be an exhibit by the American Gas Association and individual displays sponsored by the Bryant Heater and Manufacturing Company, Holland Furnace Company, Surface Combustion Company, American Stove Company and Electrolux Refrigerator Sales Corporation.

The Association's exhibit is in charge of the following committee:

R. B. Harper, The Peoples Gas Light & Coke Company, Chicago, chairman; J. D. Creveling, H. L. Doherty and Company, New York; F. J. Rutledge, The United Gas Improvement Company, Philadelphia; C. J. Ramsburg, The Koppers Company, Pittsburgh; B. J. Mullaney, The Peoples Gas Light & Coke Company, Chicago; N. T. Sellman, Consolidated Gas Company of New York, President Hewitt of the American Gas Association, ex-officio, and C. W. Berghorn of A. G. A. Headquarters, secretary.

Adjoining Home Planning Hall, and situated on both sides of Leif Eriksen Drive, are nine model homes incorporating radical departures in private dwelling design, the use of new fabricated building materials, as well as new utilizations of traditional materials, and the latest types of home furnishing equipment. These homes take their names from the builders or from the

Appliance Manufacturers Abandon Usual Exhibit

A large majority of manufacturer company members having expressed their opinion as not being in favor of an exhibit this year, the Executive Board at its meeting on March 15, determined that no exhibition shall be held in conjunction with the International Gas Conference and the Fifteenth Annual Convention of the American Gas Association in Chicago in 1933.

Subcommittee in Charge of A.G.A. Exhibit at Chicago Exposition

Left to right—top row: *N. T. Sellman, Consolidated Gas Company of New York; J. D. Creveling, Henry L. Doherty & Company; B. J. Mullaney, The Peoples Gas Light & Coke Company.* Center: *C. W. Berghorn, Secretary, Committee on Century of Progress Exposition; R. B. Harper, Chairman, Exhibition Committee at Century of Progress Exposition, The Peoples Gas Light & Coke Company.* Bottom: *C. J. Ramsburg, The Koppers Company; F. J. Rutledge, The United Gas Improvement Company*

At the San Francisco Exposition in 1915

materials used in their construction and are known as Masonite, Strandsteel Common Brick, Lumber Industries, American Rolling Mill, General Houses, Inc., Moore, Rostone and Florida.

Particular interest centers in the Masonite structure because it is to be an all-gas home. According to the latest information available the following gas appliances will be installed in this house: American Stove Company range, Bryant air-conditioning furnace, Electrolux air-cooled refrigerator and a water heater, laundry stove and laundry dryer, negotiations for which are pending. In the MONTHLY next month it is planned to give a complete description of the Masonite Home and full details including illustrations of the various gas appliances to be installed.

The American Stove Company will have ranges in five of the nine homes—Masonite, Strandsteel, Common Brick, Lumber Industries and Florida. The Standard Gas Equipment Corporation will have one of its ranges in the home constructed by General Houses, Inc. In six of the nine homes, therefore, gas ranges will be on display.

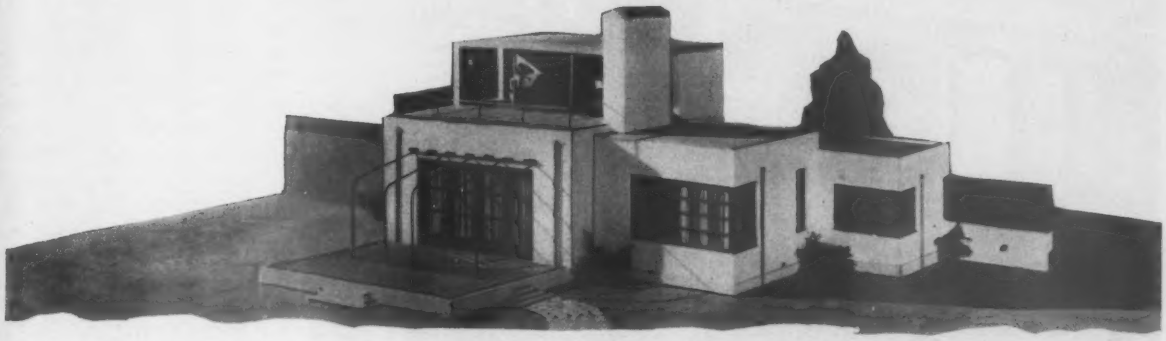
There will be a gas air-conditioning unit in four of the homes, the Bryant Heater and Manufacturing Company being represented in the Masonite, the American Radiator—Fox Furnace—in the Strandsteel, the Holland Furnace Company in the Common Brick and the Surface Combustion Company in the American Rolling Mill home.

The American Radiator and Standard Sanitary Corporation and the Johns-Manville Company have special exhibit buildings of their own, the former being located just outside the area of the model homes and the latter well within this group. Faraday refrigerator will probably appear in the General Motors exhibit.

In the "Porcelain Enamel Parade," a colorful exhibit to be located in the General Exhibits Building, displays of gas ranges will be made by the Oakland Foundry Company, Cribben and Sexton Company, Eagle Foundry Company, Crown Stove Company, Favorite Stove and Range Company and the A-B Stove Company.

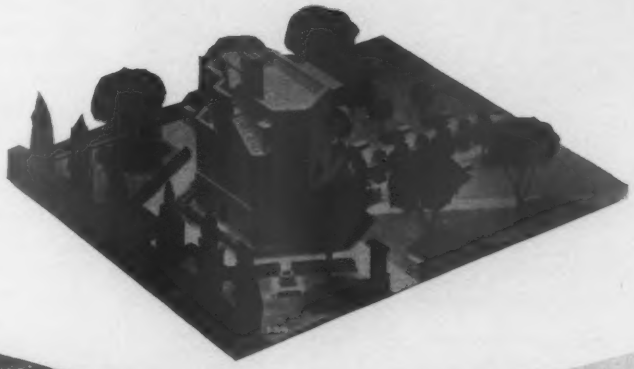
Elsewhere on the fair grounds individual displays of definite interest to gas men will be featured by other manufacturer company members of the Association, the latest list obtainable including the following: American Brass Company, Addressograph Multigraph Corporation, Burroughs Adding Ma-

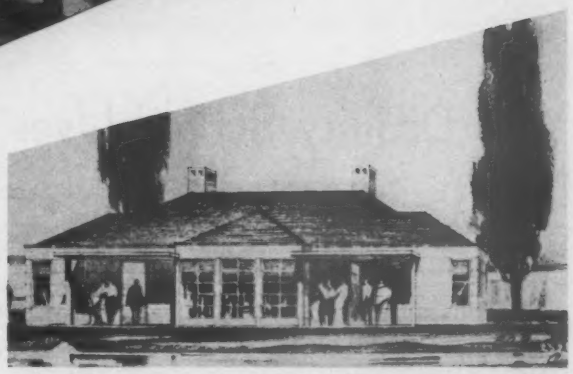
Modern Gas Appliances Will Be in These Model Homes at Chicago Fair

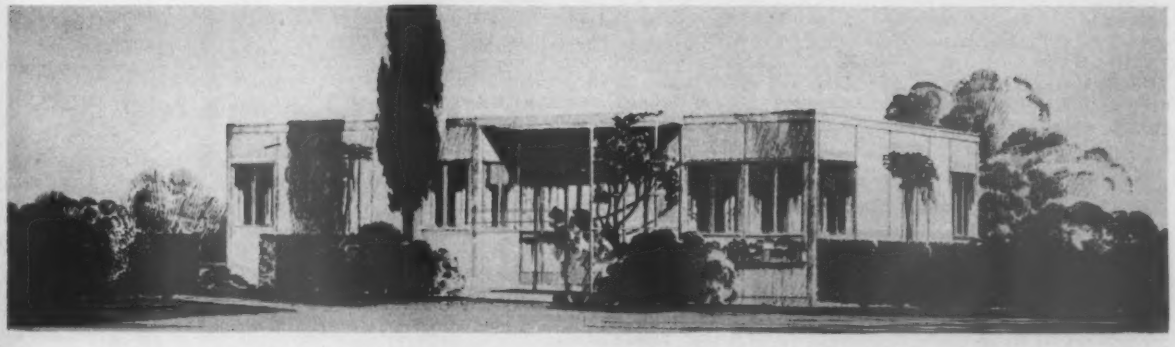


Right—Model brick home, without a square corner in any room

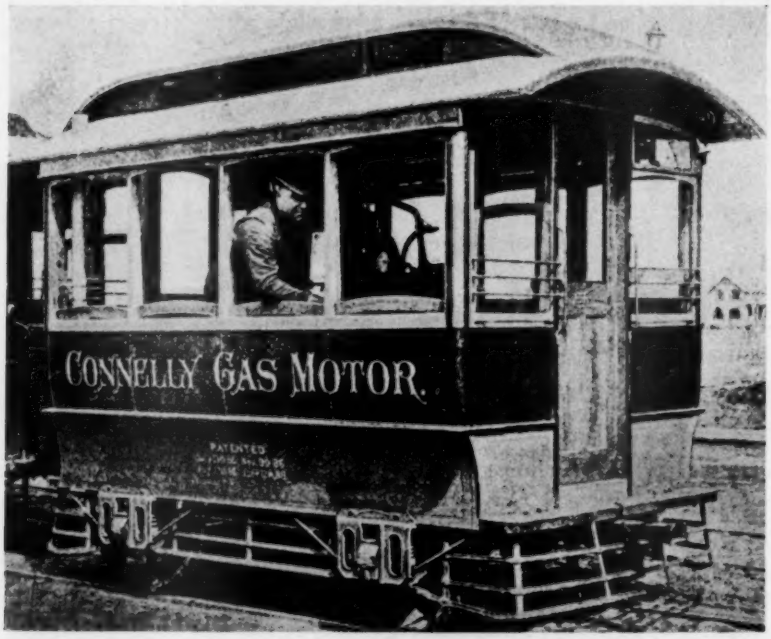
Above—Rear view of Masonite home, the all-gas equipped home







Pressed steel home of General House, Inc. Left above—the Strandsteel home. Right above—Lumber Industries' home



Do you remember this at the Chicago World's Fair in 1893?

this century is by no means the sole desire of the exposition management. They have invited the world to come to Chicago and combine instruction and education with amusement. Provision for entertainment on a scale vaster than any heretofore attempted at a world's fair has been assured grown-ups in the great Midway Section, while children will have their own wonderland in Enchanted Island. Military spectacles, historical pageants, a music festival of fifteen weeks and other diversions built to exposition proportions will appease the universal hunger for a good time.

Admission to the fair grounds will be 50 cents for adults and 25 cents for children, exactly what it was to the World's Columbian Exposition of 1893. Admission to the concessions, some sixty in number, will range from 10 to 50 cents.

Two important meetings of gas utility executives will be held at the Hotel Stevens, in Chicago, during the fair. The Spring Conference will convene June 1 and 2, and the International Gas Conference and Fifteenth Annual Convention of the American Gas Association will be held the week of September 25.

chine Company, Chicago Bridge and Iron Co., International Business Machines Corporation, Petroleum Heat and Power Company, Pittsburgh Equitable Meter Company, Underwood-Elliott Fisher Company, Union Carbide and Carbon Corporation, Crane Company and National Tube Company.

Glorifying the great achievements of

Yale Divinity School Uses Gas To Heat 19 Buildings

A CENTRAL gas-fired heating plant installation has been completed at the Yale Divinity School, New Haven, Conn., and is now in operation. The installation, which supplies heat for nineteen buildings as well as hot water and high-pressure steam, is believed to be one of the largest in the Northeast.

Following the Yale housing plan, the rebuilding of the Divinity School was carried out in the form of a self-contained unit, with nineteen separate buildings. These buildings included administrative offices, classrooms, dormitories, gymnasium, and all other facilities needed by a university.

Located in an exclusive residential section of New Haven, buildings were necessarily of artistic design, and the choice of a heating arrangement which would be most advantageous and economical in consideration of all factors was carefully approached by Yale officials.

The system is centered around five gas-fired boilers, of which four are automatic steam boilers with a total of approximately 300 bhp. with nearly 10,000,000 available B.t.u. per hour (output). These boilers heat all the buildings, which contain 20,400 sq.ft. of steam radiation. They furnish hot water to the dormitories during the regular school year.

The fifth is a 20-hp. high-pressure boiler for kitchen use and is capable of supplying steam for cooking, dishwashing and other purposes for 200 people. Several sections of solid-top gas ranges have been installed in the kitchen.

The system is of vacuum vapor type with a temperature control which permits of individual room temperature control in all buildings, operated by valves in the line. There is also a master boiler control system which automatically cuts off and turns on the boilers at predetermined times at night and in the morning.

This control throws the boilers into operations at two-minute intervals, permitting of a gradual building up of the gas load in the morning and reversing the action at night. Beyond this, the boilers operate automatically, only so many being in operation as are needed to supply the necessary heat.

Gas also plays its part in furnishing the necessary hot water for all purposes. This equipment consists of indirect steam water heaters for which steam is supplied from one or more of the main heating boilers. Water heating equipment for summer use consists of instantaneous heaters which supply the two dormitory groups.

Chicago Sendout Sets Record

Says Peoples Gas Club News, publication of The People's Gas Light & Coke Co., Chicago, Ill.:

"The largest twenty-four-hour sendout of gas in this company's history was recorded on February 9, Chicago's 'coldest day in thirty-four years,' when 844,960 therms of gas helped the city to weather the sub-zero temperatures."

The Story of Industrial Gas Told by Window Displays

By Stuart Bratesman*

Manager, Display Department,
Boston Consolidated Gas Company

FOR many years window displays in the average gas company were considered wholly from a merchandising angle of appliance settings, and nothing else. The mere thought of introducing a display without an appliance was ridiculed. Windows should be used entirely for merchandise, just like a department store, was the feeling. Now, in the first place, this attitude lacks the knowledge of the fundamentals of gas window display because utility window advertising differs greatly from the accepted department store "dressing" of windows. The department store has nothing except its actual merchandise to sell the passer-by, through its windows. But the gas company, being a public utility, has many phases of its service and uses of its product that should be "sold" through windows. Industrial window display advertisements is one activity of a non-appliance type that breaks away from the usual pattern.

ANCHORS AWEIGH!
BOSTON NAVY YARD USES
THE AUTOMATICALLY CONTROLLED GAS FURNACE SHOWN HERE IS USED IN THE MANUFACTURE OF ANCHOR CHAINS IT OPERATES AT A TEMPERATURE OF 2000°F
ANOTHER BOSTON INDUSTRY USING GAS THE BETTER FUEL

Uncle Sam tells a story about gas heat

Suppose we outline the complete story of why industrial displays are created, how they are prepared and the benefits derived from the activity. The following program is now being carried out by the Boston Consolidated Gas Company, Boston, Massachusetts:

In the first place there should be a thoroughly coordinated program decided on between the industrial department and the display department of the company. This we have in our company through L. B. Crossman, sales manager, industrial department, and myself. Satisfactory results cannot be obtained by a hit-or-miss treatment of the subject.

A program of one industrial display per month covering a period of one year is decided on. From its files the industrial department selects one particular consumer as subject matter for the coming display. No preference or favoritism should be shown in these selections, as a good majority of the big industrial consumers on the company lines will be featured in the program, providing it covers a lengthy period. The industrial department sales manager, and the manager of the display department pay a call on the firm or factory and outline the activity to the consumer, telling him just what he receives in the way of free advertising and publicity and the routing of his display through the company windows. These industrial displays serve a threefold purpose; they build good will between the consumer and the gas company, they educate the public as to the wide usage of gas in industry, and they pave the way for potential consumers by the simple expedient of the reaction of other manufacturers seeing their competitors' products advertised in the gas company windows.

After this preliminary discussion with the consumer, a rough sketch is prepared by the display department and submitted to the industrial sales manager for discussion. Photographs are taken of the gas-fired equipment at the plant to be advertised and giant enlargements made of the plates for the big display. A finished color sketch, to scale, is prepared by the display department, and approved by a conference between the general sales manager, industrial sales manager and manager of the display department. The actual display is then constructed and painted.

These industrial displays, of which seven are reproduced with these lines, are designed to attract the attention of even the most casual passer-by. The mere fact that they feature a well-

* Member Display and Contact Committee, Industrial Gas Section A.G.A.

Good Examples of Industrial Window Displays

WONDER BREAD
IS BAKED WITH GAS
IN BAKING BREAD A CLEAN EVEN HEAT MUST BE MAINTAINED
ANOTHER OF THE BOSTON INDUSTRIES USING GAS THE SMOKELESS FUEL

Bread also has a message that can be told in an attractive window display

known product is enough to interest most people. As a means of education they have no equal. Their institutional value is big, too. Phases of industrial gas that would never reach the public in ordinary channels are clearly and colorfully set forth for the perusal of the passer-by. The interest shown in this type of window display, and we speak from three years of experience, is surprising. People hardly expect to see a display of this nature in the gas company's windows in a group of appliance advertisements. In Boston, the window system covers fifteen branch offices, and the industrial displays are routed through neighborhoods where each subject will prove of more interest because of the type of people and class of workers who pass the windows. This stimulates added interest among the employees of the manufacturer advertised, especially if one or more appear in the photographs used in the display.

In Boston, the industrial display program also ties in with the direct mail advertising of the industrial department, in that, when the mailing piece is circulated the window display on the same subject is already in the system of windows.

After the display has been routed through its various windows it is sent back to the studio for retouching and then delivered to the consumer whose products appear in the set, for his own use. He is then at liberty to place it at other points of interest throughout the city, or use it in his own plant. A complete set of photographs of the entire series of displays is kept by the industrial department and used to show selected consumers tangible evidence of how the program operates and just what the displays look like. These photographs are also used in talking to new prospects.

From this brief outline, it can be readily seen that these industrial displays require a little more planning and execution than the regular appliance type of window. But, as they are produced but once a month, the amount of work does not overshadow the results obtained or throw the regular program of the display department out of gear.

Include some of these industrial window displays in your own display program next month, and carry them over a year period. They form a decided "break" from your regular sets and besides that, they build good will between you and your consumers; likewise they tend to educate your public as to the wide usage of industrial gas and stimulate sales in your industrial department.

Philadelphia Gas Works Has Big Reconstruction Plan

PHILADELPHIA Gas Works, Philadelphia, Pa., subsidiary of United Gas Improvement Co., has announced a comprehensive plan of reconstruction to increase the operating efficiency of its system. F. M. Milward Oliver, vice-president, said that the project will require five years to complete. The new plan has been made necessary by changed living conditions, shifting population centers and other phases of growth in the area served by the gas works.

Among the first major steps of the general plan to be undertaken are: Construction beneath the Schuylkill River just above the Passyunk Avenue, bridge of a tunnel of sufficient size to hold two 30-inch transmission mains, through which gas will be piped to serve the West Philadelphia area; the installation of 2.5 miles of new 30-inch main; the installation of 1.85 miles of 20-inch transmission main and of 2.8 miles of 16-inch main to increase the supply of gas to the southeastern portion of the city. There is also involved the installation of additional pumping capacity.

Among the other work to be undertaken, new gas pumping and compressing equipment will be installed at various stations. Total cost of the project will approximate half a million dollars.

Bridgeton Paper Thanks Gas Light Company

THE Owens-Illinois Glass Company deserve the thanks of Bridgeton, as well as their employees, for their forethought in providing ready cash with which to meet their big pay roll in this city.

The snug sum of $25,000 in currency turned loose in the business channels of the city at a time when the banks are closed and their strong boxes not available to secure change as well as currency, was a great help to business.

And the ever thoughtful Jacob Jones, who is always ready to step into any breach where he can be of assistance, eased the change situation by turning the quarters from the Bridgeton Gas Light Company's prepayment meters into the business stream. Thanks, Mr. Jones.—*Bridgeton Evening News*, Bridgeton, N. J., Mar. 9, 1933.

Fourteen New York Counties Produce Natural Gas

FOURTEEN of New York State's sixty-two counties now produce natural gas, according to a report by State Geologist D. H. Newland. This report describes the new Wayne-Dundee field which was discovered in March, 1930. This field has a ratio of five completed wells to every dry hole and occupies a clearly defined structure, with many wells producing as high as ten million feet of gas daily.

The Industry's Outlook*

By Arthur Hewitt
President, American Gas Association

THE development of the natural gas business on this continent undoubtedly has been one of the notable industrial events in the history of the country. Those of us who have been concerned primarily with the manufactured product probably have been in a better position to judge the importance of this event in the United States than outsiders have been. We know enough about the business to see what it means to make available to great centers of population a natural product which, without the creation of pipe lines, would lie dormant through the centuries or be a wholesale waste.

Indeed, we may have a keener appreciation of your achievements than you yourselves have, for it has been my observation that the men who accomplish great things often are too modest to admit to themselves that they have done a first-class creative task. And we also have the advantage of standing a little further from the picture, and thus are enabled to see it more clearly than do those who are a part of it.

All of us in the gas utility business have reason to be proud of the high degree of cooperation that exists between its various branches. Our industry is large enough to recognize opportunities for rendering greater service to the public through the coordination of existing distribution facilities in centers of population with the pipe lines bringing the natural product great distances. Such breadth of vision has not been displayed in every other industry; at least, the gas industry has averted the criticism which one often hears with respect to the railways for their failure to recognize the importance of highway transportation and to coordinate that service with their own, before the public and everyone else concerned became embarrassed because the competitive situation had become wasteful.

* * * *

* Digest of address before Eastern Natural Gas Regional Sales Conference, Hotel Schenley, Pittsburgh, Pa., March 2, 1933.

Pennsylvania Utilized Natural Gas in 1840

In the state of Pennsylvania, natural gas was first utilized in 1840, for the purpose of manufacturing salt from brine, thus representing the first industrial use of natural gas in the United States. To the state of Pennsylvania goes also a credit of first employing natural gas in the United States in the manufacture of iron and steel, which occurred in Leechburg in 1875, as well as the construction of the first natural gas pipe line of any substantial length, which was built from the Harvey well near Larden's Mills, to Etna, near Pittsburgh, a distance of seventeen miles, in October, 1875. Natural gas was first utilized in Ohio in Findlay at about the same period as in Pennsylvania.

Such frequent and comprehensive claims to the origin of the natural gas industry, place the remainder of the industry in debt to this area for the leadership of your early gas men. The same obligation rests upon the oil industry because of the fact that gas well drilling preceded the first oil well by more than thirty years, and the oil industry profited tremendously from the early experience of the gas men in developing this natural resource.

With this brief background of natural gas in the early part of the nineteenth century, the amount produced and distributed increased slowly until in 1882 when the total production of natural gas for the United States was valued at only $215,000. At that time, most of the gas came from the states of Pennsylvania, New York, Ohio, and West Virginia, while now the natural gas is produced in twenty-four states and distributed in thirty-two states, and for the year 1932 had a salable value of $342,000,000 and a total customer list of five and a half million users.

I do not need to recount to you the tremendous spread in the availability of natural gas in recent years due to the laying of gas transmission lines and because of the discovery of new gas areas in many states other than those covered by this conference. But I do feel that a record of the industry in this area in comparison with others during the present period of business depression is worthy of note.

I find from the statistical reports of the Association that during the year ending December 31, 1932, as compared with the year 1931, 200 natural gas companies representing 75 per cent of the industry showed a decrease in gas sales of 8.6 per cent and a reduction in revenue of 7.5 per cent, covering all branches of their business.

That the sales departments of the companies in the states covered by this conference have had to fight a relatively more severe battle is indicated by a study of the figures for these states. In New York, for instance, natural gas sales during the same period declined 20.5 per cent and revenue 17.5 per cent. In Pennsylvania the sales decrease was 18.1 per cent and the revenue decrease was 17.2 per cent. In Ohio the sales decrease was 8.8 per cent and the revenue decrease was 10.1 per cent. In West Virginia the decrease in sales was 14.9 per cent and that in revenue was 15.4 per cent.

These figures are a measure of the difficulties with which you are confronted and an indication of the importance of serious discussions such as this conference affords, of the methods and means by which some of you are successfully meeting the problems of the business depression and the competition which it has engendered.

A Favorable Picture

A few years ago any business statement showing losses in sales and revenue such as those given above for the natural gas industry of America as a whole, and particularly for those giving the situation by the states, would

have been regarded as anything but encouraging. I think you will agree with me, however, that in the light of the history of business of all kinds during the past three years, such figures as we are now able to present concerning the gas industry are favorable and encouraging and fully demonstrate the vital position as a basic industry which we occupy.

While practically all businesses have been affected adversely by the current depression, the extent of decreases and the manner in which these conditions have affected each industry are significantly different, and dependent upon the character of the particular business. In our own case, whether we are engaged in the manufactured or natural gas branch of the industry, our investment per dollar of gross revenue in normal times is somewhere around $5. In other words, compared to other industries, the utility industry has a very high investment cost and as a consequence nearly one-half of our gross revenues are necessarily reserved for taxes, depreciation and a return to those who have invested their money in our business. We have no choice as to meeting these obligations if the credit of the industry is to be maintained and the cost of securing new capital for future expansion is not to become a burden on our customers. This situation is well recognized within the industry, but is not realized generally by the public and particularly so at such times as these when clamors for rate reductions are so generally prevalent throughout the country. If our customers realized, or could be made to realize, that nearly one-half of every dollar charged for the service rendered is necessary for these fixed charges which are largely irreducible, it would become self-evident to them that the reductions which have occurred recently in the remainder of the expense of furnishing them service would not permit rate reductions of an impressive character, particularly so when the volume of sales itself has fallen off so sharply as indicated by the figures just quoted.

The high investment ratio of the utility business has another effect at this time, and that is to accentuate the competition from other fuels which all of us are having to meet. We in the business know that the item of fixed charges just mentioned is by far the largest expense factor in the cost of rendering service. We also know that speaking generally the privately operated fuel industries with which we are competing have no such high investment ratios as ours and that consequently our competitors have found it possible to reduce their overhead costs and sales prices to an extent that is not possible in our industry. Increased competition from these conditions is prevalent in both branches of the gas industry, and makes it necessary for our sales forces to redouble their present efforts at the preservation of business, as well as carry on their new business activities.

The hopeful note that I would leave with you is the thought that the competition engendered by the disruption in prices of other fuels today will largely disappear as soon as the improvement in general business conditions occurs.

Similarity of Problems

During my long experience in the industry and my participation in the activities of the American Gas Association in recent years, I have been frequently impressed with the growing similarity of the problems facing those engaged in the natural gas branch of the industry as compared with the manufactured gas branch. In no case is this more true than in the activities of the sales departments and personnel of the gas companies.

Over a long period of years, due to the necessity of reaching out farther and farther for satisfactory sources of natural gas and to the trend toward measures to perfect the continuity of that service, the trend in the rates charged for natural gas has necessarily been steadily upward. For instance, according to the reports of the Bureau of Mines and the Department of Labor, in the United States the price of natural gas for domestic service has risen from 38 cents per thousand in 1920 to 66 cents per thousand in 1931.

During the same period the trend of manufactured gas prices, while not showing as striking a change, has been uniformly downward, the initial price being $1.32 per thousand in 1920 and $1.16 per thousand in 32 major cities in 1931. While there is still a wide difference in the cost of identical service at the present time, it should be evident to all of us that the selling problems of both branches of the industry are approaching a state of greater similarity and with the introduction of natural gas into many manufactured gas territories, it is evident that the effective solution of our problems, particularly in the sales field, requires an ever-increasing degree of cooperation and common purpose on the part of all concerned.

The numerous activities and plans of the American Gas Association are proof of the fact that the Association headquarters fully realizes the need for cooperative action between all branches of the industry. I might name many of these activities, but will be content to mention only one important one, viz., the new National Directing Committee of Executives, which has been created to bring about a more aggressive policy of gas companies in the sale of gas for domestic purposes. The membership of the committee has been set up on a regional basis in order that each regional director may later organize a representative group in his territory to sponsor domestic gas sales development plans with specified individuals in each company to carry out the agreed upon plans. It is significant that one of the vice-chairmen of the committee is Mr. H. C. Morris, president of the Dallas Gas Company, Dallas, Texas, and that the regional membership includes: Mr. H. C. Blackwell, president, Union Gas & Electric Company, Cincinnati, Ohio; Mr. W. W. Winter, vice-president and general manager, Atlanta Gas Light Company, Atlanta, Georgia; Mr. J. V. Strange, vice-president, United Gas Public Service Company, Houston, Texas; Mr. Clare N. Stannard, vice-president and general manager, Public Service Company of Colorado, Denver, Colorado; and Mr. F. S. Wade, president and general manager, Southern Counties Gas Company, Los Angeles, California.

Conference Proves Helpful

The participation of these natural gas leaders is a guarantee that the sales development program of the committee which is now in preparation and will be announced in June, will amply recognize the interest of the natural gas branch of our industry. The committee will not only promulgate a sales

program to the industry, but will take every possible opportunity to see to it that the member companies of the Association are active in putting this program into effect. Its objectives also include the important one of promoting the application of sound promotional rate structures for the development and retention of the domestic business as well as the industrial and commercial load.

When I was invited to address this sales conference for the eastern natural gas region, I was told that inquiries among those who have attended previous conferences indicate that the gas men from this region feel that this activity is one of the most helpful ones conducted by the Association and of interest to the natural gas men. Reactions such as these are a source of great gratification to the officers and members of the staff of the Association who are at all times anxious to make the Association's activities of maximum value to the natural gas branch of the industry, and fully representative of the needs and best thoughts of its natural gas membership. The efforts of the members of the Sales Council who are responsible for the planning and holding of these conferences are greatly appreciated and are quite necessary in order to make the conference successful in stimulating sales activities, which is its main purpose.

Let me urge you to participate fully, both as individuals and as member companies, in the other activities of the Association, in order that they may be welcomed by the natural gas men as being an equally effective aid in the solution of their problems. The officers and staff personnel in every section and committee are anxious to have active committee membership from the natural gas branch fully representative of the best thoughts in that group, and when you or your companies are invited to participate in these other activities, I urge you to lend them your full support, as a matter of self-interest and in order that the industry as a whole may progress to greater achievements.

There is still a great deal of room for a better understanding among the members of each branch of the industry as to the problems and successful methods of meeting them in the other branches. Many manufactured gas men still feel that their sales problems would be quickly solved if they were in the natural gas branch with the lower service cost. They fail to realize that, generally speaking, competitive fuels are also lower in cost in most natural gas areas, so that the final result is a degree of competition not greatly different from that in the manufactured gas branch. The message which I wish to leave with you is my belief that the Association and its many activities constitute the logical place for a profitable exchange of our several experiences and the feeling that the interest of all of us will be advanced more successfully and more rapidly if there is the fullest cooperation of all parties in solving the industry's problems in the future.

To Present Paper for A.G.A. Before World Power Conference

ON behalf of the American Gas Association, E. G. de Coriolis, research engineer of the Surface Combustion Corporation, Toledo, Ohio, has prepared a paper on "Recent Industrial Gas Developments and Trends in the United States," for the Stockholm sectional meeting of the World Power Conference, which will take place in the Swedish capital during July.

E. G. de Coriolis

Mr. de Coriolis' paper points out the steady progress that has been made in the past in the utilization of town gas for industrial heating purposes in average size applications in the United States. The paper explains that perhaps the greatest progress has been made in its use in heating operations in the heavy industries. These latter developments have been due in part to the extension of the supply of natural gas during the last five years to many industrial centers of the country. The new developments in utilization represent in many instances, the culmination of years of research and consist chiefly of improvements in combustion technique applicable to both old and new apparatus. In addition, entirely new types of furnaces and other heating equipment have been developed and brought to the stage of commercial acceptance.

Many outstanding improvements in combustion methods are noted. These are chiefly in the form of variations in surface combustion, of new applications of luminous combustion, of immersion heating, of developments in diffusion combustion, of elimination of burner and furnace noises, and of more efficient use of preheated air.

In the steel plants greatest advances in the use of gas have been in the finishing end. These include heating bars and sheets in the process of hot rolling of medium and thin gauge sheets for galvanizing, for tinning and for auto body work. These developments have largely coincided with and depended upon an important change which is still taking place in steel mills, namely, the elimination of hand strip mills and the substitution of continuous mechanical strip mills. Developments in the use of gas for heat treatment of wire in steel mills are also mentioned as being worthy of note.

In the general heat treatment field the introduction of "controlled atmosphere" furnaces, particularly of the continuous type, has had a great influence in the last five years. Research sponsored by the American Gas Association has been largely responsible for the development of such furnaces for the prevention of decarburization and of scaling at both high and low temperatures in the processes of annealing, forging, etc.

In the field of ceramics, it is shown that developments have been similar to those in heat treating and intensive work has been done in connection with "controlled atmosphere" heating processes. This is opening fields to gas which heretofore have not been considered in its province because of the necessity under the old processes of using the cheapest fuels. Bisque and glost ware are now being successfully fired in direct "controlled atmosphere" gas furnaces and work on furnaces for firing sheet steel enamel in the same way is now well advanced.

It is noted that during the past five years there has been an increase in the average efficiency of the application of gas to nearly all of the thousands of industrial heating processes. Largely because of this increase in average efficiency, gas has continued to serve the industries of the nation during this period of trying changes in factory conditions. Mr. de Coriolis' paper concludes with the statement that changes in the competitive industrial fuel situation in the immediate future are likely to be determined by a combination of technical advances and of price levels.

Determination of the Effect On Wall Tile Glazes of Direct-Firing with Gas

By Arthur P. Watts*

IT has been the practice for many years in the manufacture of glazed ceramic wares to enclose the ware during firing in various types of refractory containers, in order to protect it from the products of combustion of the fuel, and also to secure a more even temperature around the ware. The methods of manufacture and the design of kilns used in the production of ceramic wares have shown marked improvement, but it is still common practice to enclose the pieces in saggers, or to fire them in muffle furnaces to protect them from the furnace atmosphere. This protection was found necessary because the products of combustion resulting from the crude fuels that have chiefly been used had a deleterious effect on the ware.

The use of these protective devices involves considerable expenditure in the firing of ceramic wares. When saggers are used, whether in periodic or tunnel kilns, they are a dead load which must be heated and cooled. The cost of the saggers and their regular replacement is also a considerable item of expense. This is also true of the use of muffle kilns, in which the maintenance cost is high. Additional fuel is also required to force heat through the muffle to the ware being fired.

In view of these facts, the possibility of direct-firing of ceramic wares has become a subject of great interest to manufacturers of ceramic products. Coal and oil have found extensive use in the ceramic industry but they could not be considered as fuels for the direct-firing of ceramic products. The difficulties due to smoke, soot, regulation, etc., and the character of the gases of combustion of these fuels, apparently prohibit their use in direct-firing systems. With the realization that the ceramic industry, in its various branches, offers a large potential field for the use of gas as a fuel, and also realizing that the long established practice of using muffles and closed saggers offered a decided handicap to the general introduction of a refined fuel, the American Gas Association became interested in the direct-firing of these products with gas, since the savings effected by the elimination of saggers and muffles would enable them to compete with other cheaper fuels used.

Interior of direct gas-fired research ceramic kiln

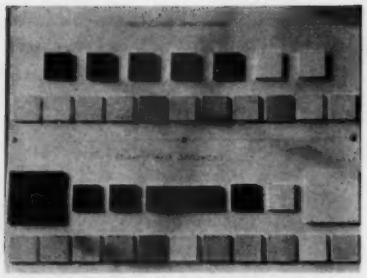
A fellowship was established at the Department of Ceramics, Rutgers University, New Brunswick, N. J., late in 1928, known as American Gas Association Industrial Research Project No. 11, for the purpose of developing data concerning the utilization of gas in the direct-firing of glazed ceramic wares. The department, in cooperation with the Research of the Association, began a three-fold research program as follows:

1. Obtaining basic information concerning the effect of furnace gases on glazes by means of strict laboratory investigations.
2. The application of the data so obtained to direct-firing on a moderate scale.
3. The application of the data to direct-firing on a commercial scale.

The first phase of the above research program was carried on with wall tile

General view of furnace room, Ceramic Laboratories, Rutgers University

*Research Fellow, American Gas Association Industrial Research Project No. 11, Department of Ceramics, Rutgers University, New Brunswick, N. J.



Top row—Wall tile fired in direct gas furnace Bottom row—Wall tile fired in muffle furnaces in ceramic factories

glazes, and a brief report of the results obtained was published in Volume 13, No. 1, p. 13, 1931, of THE MONTHLY. Briefly summarized, this first phase of the investigation showed that it was feasible to fire wall tile glazes in direct contact with the products of combustion of public utility gas and that the glazes thus produced were equal in quality to commercially fired glazes of the same type. White glazes only were included in the first phase of the research. It was noted, however, that certain reducing atmospheres were found to be harmful and it was recommended that, depending upon conditions, from four to five per cent of oxygen should be present in the furnace atmosphere during the maturing of the glaze.

Direct-Firing Tests on Wall Tile Glazes

The information obtained in the first or strictly laboratory phase of the research was applied to the second phase, i.e., the direct-firing of ceramic glazes on a small scale. The apparatus used in this phase consisted of a gas-fired hearth-type furnace, using a commercial combustion system, and fired on both sides beneath the hearth. With this system, the furnace atmosphere could be varied at will and made either reducing, neutral, or oxidizing. A precision type gas analysis apparatus was used in analyzing the furnace atmosphere in the various tests and all other factors were closely controlled.

Glazes Tested

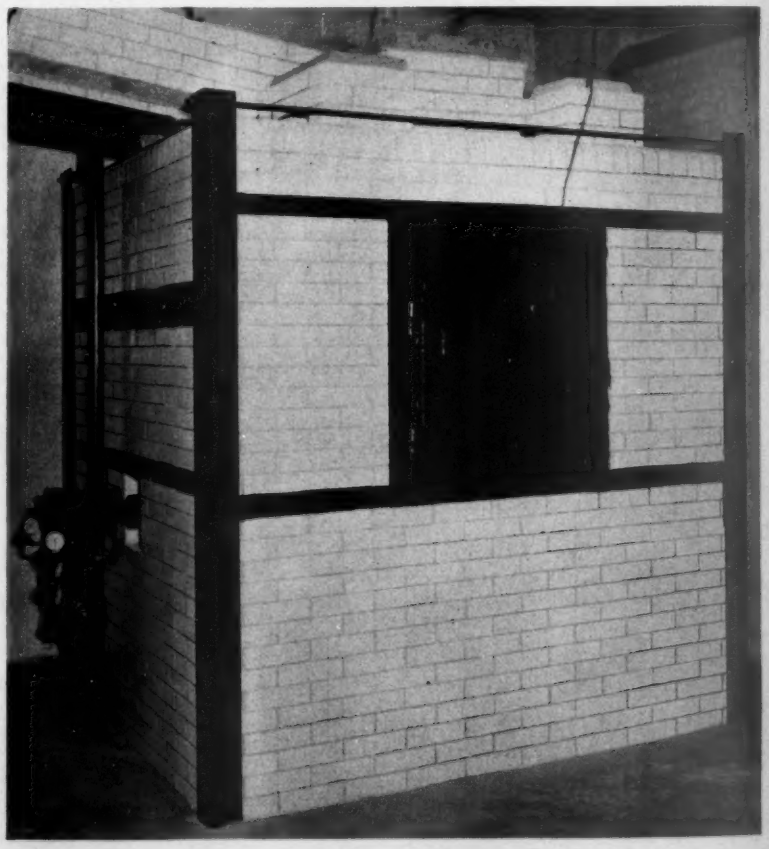
The second phase of the investigation involved tests with all types of ceramic glazes. However, the results with wall tile glazes only are reported in this article, and the other types will be reported in subsequent articles. Wall tile glazes for this investigation were prepared in the laboratory and also secured from near-by plants where they were in actual use at that time. In the case of the latter, the specimens were glazed at the plants from which they were secured and brought to the laboratory for the direct-firing tests. At the same time specimens of average quality fired ware were secured from the plants supplying the unfired specimens, so that a comparison could be made with the pieces direct-fired in this laboratory. The results of direct-firing tests with wall tile glazes from plants in the Perth Amboy and Trenton districts are given in Table I.

Method of Firing Test Specimens

The specimens were fired in a hearth-type gas furnace, in which they were elevated slightly by means of a bisque tile to keep them from sticking to the hearth, and to prevent over-

White and colored wall tile fired in direct gas furnaces

heating of the bottom surface. It was found that occasionally when specimens were placed too close to the edge of the hearth "flashing" would occur, i.e., the flame impinged directly upon the piece. This causes blistering of the glaze, and was prevented through the placing of fire clay baffles along each side of the hearth and also at the back. These baffles did not prevent the products of combustion from coming in contact with the test specimens, and



Experimental direct gas-fired ceramic kiln

utilizing a high degree of convected heat but they did prevent direct *flame* impingement.

Another difficulty which was experienced occasionally was the deposition on the glazed surfaces of fine particles of refractory dust which had been caught up in the convection currents within the furnace. This difficulty was not as pronounced with the wall tile glazes as with some of the other types tested, due probably to the fact that the wall tile glazes dissolved the fine refractory dust which was largely silica. To overcome this condition, a burned tile was placed above the specimens.

TABLE I

WALL TILE GLAZES USED IN THE DIRECT-FIRING TESTS

Glaze No.	*Source*	*Color*	*Type of Surface*	*Approx. Temperature of Maturity*	*Quality of Direct-Fired Specimens*
1	Com.	White	Bright	2,100° F.	Excellent
2	Com.	White	Matt	2,100° F.	Excellent
3	Com.	Green	Bright	2,100° F.	Excellent
4	Com.	Green	Matt	2,100° F.	Excellent
5	Com.	Brown	Bright	2,100° F.	Excellent
6	Com.	Black	Bright	2,100° F.	Excellent
7	Com.	Black	Matt	2,100° F.	Good; somewhat less glossy than plant specimen.
8	Com.	Cobalt blue	Bright	2,100° F.	Excellent
9	Com.	Sky blue	Matt	2,100° F.	Excellent
10	Com.	Lt. blue	Bright	2,100° F.	Good; a lighter blue than plant specimen.
11	Com.	Pink	Matt	2,100° F.	Excellent
12	Com.	Orchid	Bright	2,100° F.	Good; but fainter in tint than plant specimen.
13	Com.	Salmon	Matt	2,100° F.	Excellent
14	Com.	Yellow	Bright	2,100° F.	Good; slightly changed in tint by direct firing.
15	Com.	Yellow	Matt	2,100° F.	Excellent
16	Com.	Cream	Bright	2,100° F.	Excellent
17	Com.	Tan	Bright	2,100° F.	Excellent
18	Com.	Mottled gray	Bright	2,100° F.	Excellent
19	Com.	Dark gray	Matt	2,100° F.	Excellent
20	Com.	Mottled blue-gray	Bright	2,100° F.	Excellent
21	Com.	Greenish blue	Matt	2,100° F.	Excellent
22	Com.	White	Bright	2,010° F.	Excellent
23	Com.	Tan	Matt	2,010° F.	Excellent
24	Com.	White	Bright	2,130° F.	Excellent
25	Lab.	White	Bright	2,010° F.	Excellent
26	Lab.	White	Bright	2,010° F.	Excellent
27	Lab.	White	Bright	2,150° F.	Fair—glaze apparently underfired.
28	Lab.	Cream	Matt	2,010° F.	Excellent
29	Lab.	Red	Matt	2,070° F.	Excellent
30	Lab.	Red	Matt	2,070° F.	Excellent
31	Lab.	Red	Matt	2,070° F.	Excellent
32	Lab.	Red	Matt	2,070° F.	Excellent
33	Lab.	Green	Bright	2,070° F.	Excellent
34	Lab.	Yellow-green	Matt	2,070° F.	Excellent
35	Lab.	Dark gray-green	Matt	2,070° F.	Excellent
36	Lab.	Blue-green	Matt	2,070° F.	Excellent
37	Lab.	Lt. blue-green	Matt	2,070° F.	Excellent
38	Lab.	Dark blue-gray	Matt	2,070° F.	Excellent
39	Lab.	Lt. blue-gray	Matt	2,070° F.	Excellent
40	Lab.	Gray	Bright	2,070° F.	Excellent
41	Lab.	Salmon	Matt	2,070° F.	Excellent
42	Lab.	Orchid	Matt	2,070° F.	Excellent
43	Lab.	Cream	Matt	2,070° F.	Excellent
44	Lab.	Violet	Matt	2,070° F.	Excellent
45	Lab.	Red	Crystalline	1,700° F.	Excellent
46	Lab.	Red	Crystalline	1,700° F.	Excellent

NOTE: Com. = Commercial glaze obtained from plant.
Lab. = Glaze prepared in laboratory.
Bright = Glossy Surface; Matt = Satin Surface.

Air for combustion was taken from outside the kiln room to prevent the entrainment of dust particles which might be present in the air of the room.

The test specimens were generally fired to the maturing temperature in from four to eight hours, depending on the maturing temperature of the glaze and the size of the specimens. The free oxygen content of the furnace atmosphere was kept between four and seven per cent in practically all of the tests. A gas analysis of the furnace atmosphere was made periodically during the tests. A fairly accurate estimate of the composition of the furnace atmosphere could be made from the gas and air valve gauge readings after these had been correlated with gas analyses made at the various valve settings.

Upon firing a specimen or group of specimens in the hearth-type gas furnace the results were compared with the specimens of the same glazes fired either in a muffle furnace, where they were entirely protected from the products of combustion, or with specimens fired in the ceramic plant from which the original specimens were obtained. In this way, it was possible to immediately determine whether direct-firing was having a deleterious effect on the particular glaze being tested.

Results of Direct-Firing Tests on Wall Tile Glazes

It was found that all of the twenty-four commercial wall tile glazes tested were unaffected as regards smoothness and quality of the surface after direct-firing in the hearth-type furnace. Of the twenty-four, three were slightly altered in shade by direct-firing, these being glazes Nos. 10, 12, and 14. It is believed that the little difference in tint could readily be corrected by a slight adjustment in the amount of coloring oxide in the glaze.

The twenty-two white and colored wall tile glazes compounded in the laboratory and direct-fired in the hearth-type furnace compared favorably in quality with the same glazes fired in a muffle furnace. Gloss and texture were identical and in only a few cases was there a difference in tint between the direct-fired and muffle-fired specimens.

(Continued on page 161)

Associated Gas System Employees Win Speaking Awards in S. J. Magee Contest

Sanford J. Magee

HIGHEST honors in employee public speaking throughout the Associated Gas and Electric System for 1933 were awarded by Sanford J. Magee, vice-president and general manager of the Associated Gas and Electric Company, at the final competition of the second annual S. J. Magee Speaking Contest at the Hotel Commodore, New York City, February 27.

This annual competition, instituted by Mr. Magee during the 1931-1932 season to promote proficiency in public speaking and to stimulate thought about company affairs, is open to the 13,000 employees of the Associated System.

Fifteen contestants, nine men and six women, reached the 1933 finals in New York City after winning in a series of elimination contests within their local property groups.

Miss Jennie Potter, Pennsylvania Electric Company, Johnstown, Pa., and George W. Hill, Cambridge Gas Light Company, Cambridge, Mass., received first place and were each presented with $100 in gold, the first prize award, since contests were open to both men and women.

Second prizes of $50 each were awarded to Miss Carmeta Johnston and D. A. McKeever, both of Florida Public Service Company, Orlando, Fla. Third place honors of $25 each went to Miss Isabelle R. Smale, Metropolitan Edison Company, Reading, Pa., and to Russell B. Howe, Rochester Gas and Electric Corporation, Rochester, N. Y.

The others who competed in New York were Miss Alta J. Burns, New York State Electric and Gas Corporation, Brewster, N. Y.; Miss Edith Holdgate, Rochester Gas and Electric Cor-

Back row, left to right—Edgar W. Mathews, E. R. Schmickle, Thomas J. Whelihan, D. A. McKeever, E. C. McGinley, George W. Hill, A. J. Kavanaugh, John S. Wilson, Russell B. Howe, Robert Shiels

Front row, left to right—Alta J. Burns, Isabelle R. Smale, Jennie Potter, Mrs. M. A. Devlin, Carmeta Johnston, Alice Smith, Edith Holdgate

poration, Rochester, N. Y.; Miss Alice Smith, Cambridge Electric Light Company, Cambridge, Mass.; A. J. Kavanaugh, New York State Electric and Gas Corporation, Plattsburgh, N. Y.; Edgar W. Mathews, Pennsylvania Electric Company, Johnstown, Pa.; E. R. Schmickle, Metropolitan Edison Company, Easton, Pa.; Robert Shiels, Pennsylvania Electric Company, Meadville, Pa.; Thomas J. Whelihan, Staten Island Edison Corporation, Staten Island, N. Y.; John S. Wilson, Empire Gas and Electric Company, Geneva, N. Y.

An elimination contest was held during the morning of February 27 to select five men from the nine who came to New York to compete for system honors. No elimination was held for the women, because there were only six entries. Final winners were chosen after presenting their speeches in the evening before a large group of executives, employees and guests.

Every one who heard the speeches expressed admiration for the talent and ability shown, which made the task of selecting winners difficult for the judges. These included C. C. Atwood, assistant chief engineer, The Brooklyn Union Gas Company; W. C. Bowen, personnel director, International Telephone and Telegraph Company; C. H. B. Chapin, secretary, Empire State Gas and Electric Association; Miss Katharine Fisher, Good Housekeeping Institute; Major Alexander Forward, managing director, American Gas Association; Edward Hungerford, special representative, New York Central Lines; Charles E. Morrison, president, Utilities Mutual Insurance Company; Ralph Neumuller, managing director, Electrical Association of New York; D. A. Straight, personnel manager, Henry L. Doherty and Company; Travis H. Whitney, attorney.

Judges at the morning contest included Warren Partridge, L. D. West and H. L. Heineman, all of the Utility Management Corporation, New York City, and H. C. Hasbrouck and John J. Ward, Jr., of Utility Accountants and Tax Consultants, Inc., New York City.

Speakers were allowed to choose their own subjects, which covered many phases of the gas and electric industry and the Associated System. In her speech, "Back to the Good Old Days," Miss Potter showed that, thanks to the many modern conveniences brought about through electric and gas services, we would rather not go back.

Mr. Hill's subject was titled, "The Holding Company and How It Deals with the Three M's of the Public Utility Industry." These three "M's," he stated, were "money, machines and men" and showed how the holding company, through its opportunities for financing, large-scale purchasing and securing expert managerial and engineering service, is advantageous to the utility industry for maintaining the best service.

Miss Johnston told how the Employee Business Building Plan, an Associated activity in which all employees are participating to help their company increase business, can be a strong influence not only to increase revenues but to develop good public relations.

Mr. McKeever, in his speech on "Rate Making," explained the economic principles behind various rate charges.

Miss Smale showed how electric service has brought relief from endless toiling to the farmer.

Mr. Howe pointed out how good service can overcome competition in the gas industry and showed how the consumer's dollar is more gracefully contributed to the competitor who gives the largest measure of satisfaction.

The other contestants' subjects were as follows:

Miss Burns, "Service"; Miss Holdgate, "Utility Service"; Miss Smith, "An Experiment Becomes a Necessity"; Mr. Kavanaugh, "Why Don't the Utilities Talk Back?"; Mr. Mathews, "Progress"; Mr. Schmickle, "What Shall We Do about Public Relations?"; Mr. Shiels, "Employee Cooperation"; Mr. Whelihan, "How Public Relations Can Be Improved"; Mr. Wilson, "Politics and the Utility Industries."

It would be difficult to estimate the educational value of the contest to the Associated System. About 700 men and women took part in the practice classes that were conducted on Associated properties during the fall and winter of 1932 and 1933. Through the careful study each had to make in preparing a speech, he has gained information about his company and the industry in which he is engaged, that will not only make him a more valuable employee, but will have its influence on other employees and customers with whom he comes in contact. The Associated management has also found that the public speaking activities have been an important factor in building System unity by bringing together employees from Associated properties in all parts of the country.

F. W. Fisher of Rochester, N. Y., was director of the contest, which was one of the activities of the Associated System personnel department, but due to his illness, A. C. Rissberger, of Rochester, presided at the final contest in New York. H. W. Chatfield, assistant secretary of the Employees' Welfare Association, New York City, assisted with arrangements. Mrs. M. A. Devlin and E. C. McGinley, of the Utility Management Corporation, New York City, were hosts to the contestants during their stay in New York. A dinner for participants in the contest, judges and System executives preceded the speaking.

International Gas Union May Send Representatives Here

AT a recent meeting of the Council of the International Gas Union, held at Basle, there was received with appreciation a communication from C. E. Paige, Chairman of the American Gas Association's Reception Committee, expressing the hope that a number of the fraternity in Europe will find it possible to accompany the members of the Institution of Gas Engineers on their visit next September and October to attend the annual conventions of the Canadian and American Gas Associations and to tour some of the cities in these countries. The Canadian Gas Association has applied for membership in the International Gas Union.

Aiding Transit Association

ARTHUR HEWITT, president of the American Gas Association, is one of five presidents of member organizations in the United States Chamber of Commerce to nominate J. H. Hanna, president of the Capital Traction Company, Washington, D. C., for election as a director of the chamber in the Department of Transportation and Communication, to succeed J. N. Shannahan who is ineligible for re-election through change of residence. Mr. Hewitt expressed satisfaction at the opportunity to thus honor a leading member of a sister organization, the American Transit Association, which organization, however, will be responsible for the campaign for his election.

Electrolux Introduces Air-Cooled Refrigerator

By F. E. Sellman

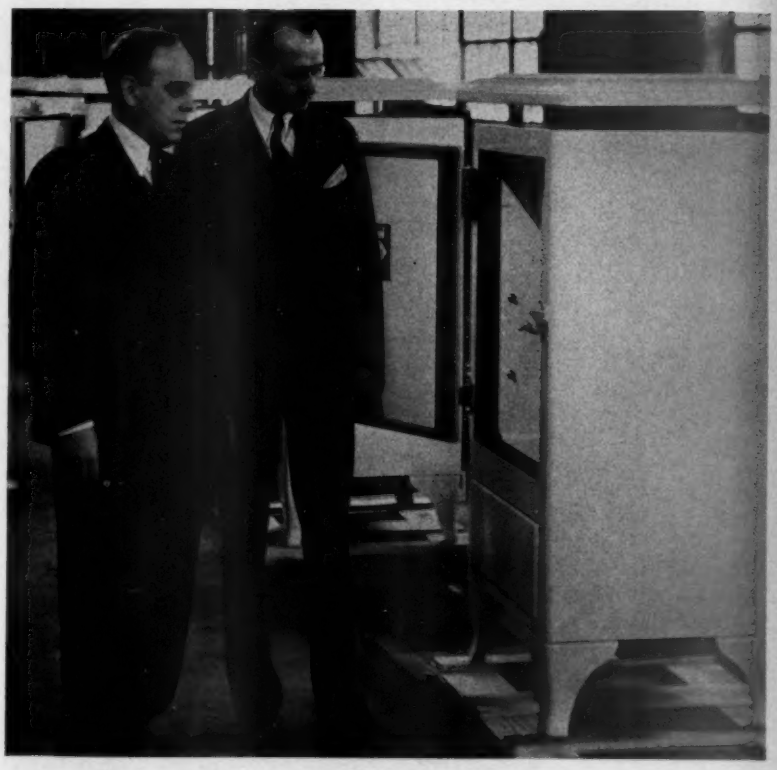
Vice-President,
Electrolux Refrigerator Sales, Inc.

IN the fall of 1926 the first salable gas refrigerator was placed on the market in the United States. Today there are approximately 300,000 gas refrigerators in operation in this country. During this space of six years the number of models available to the public has increased from one to nearly eighteen, thus providing the public with a complete line of domestic household refrigerators, varying in size from 3 to 20 cu.ft. In addition, the ice cream field has been entered, and there are now available seven distinct models, ranging from two holes to six holes, either single or double row.

All these 300,000 refrigerators have been sold under the handicap of having to use cooling water. If one could always be provided with cool, clear water, the water-cooled refrigerator would prove very economical. However, there are vast sections in this country where the cooling water can hardly be called cool, and where the water is far from being clear. This condition particularly applies throughout the entire southern section of the country, and also to such portions of the country where the water departments do not give to the public the proper type of water that might even be considered as drinking water.

Competition has naturally, eager to exploit its own commodities, vastly enlarged upon and exaggerated the amount of water used for cooling purposes. In addition, water company officials, to take care of high water bill complaints, have made it a point of first asking the customer whether they had a gas refrigerator that used cooling water, and if the answer was in the affirmative, then they solved their own problem with their high billed customers.

Ever since 1926 we have endeavored to provide a gas-operated refrigerator that could eliminate water as a cooling medium. We could have provided an air-cooled refrigerator some years ago if we had not considered the appearance or the utility of the cabinet. We have, however, been firm in our contention that an air-cooled refrigerator must not occupy additional space over that of the water-cooled and that the air-cooled refrigerating unit must be equal to, or better, in performance than the water-cooled type of unit.



F. E. Sellman, vice-president, and George L. Roach, sales manager, inspecting new line

Recent developments in our laboratories have made both of these obstacles a thing of the past.

The gas industry has, ever since gas refrigeration was first brought to its attention, been awaiting an air-cooled refrigerator. We are happy to be able to present this to the industry, and hope with this ultra-modern appliance to enable the industry to go out and secure the refrigeration load.

Numerous inquiries have been received relative to the question as to the amount of heat that may be liberated into a room by using an air-cooled model as against the water-cooled model.

The air-cooled machines burn approximately 15 per cent less gas than the water-cooled and, consequently, the heat liberated would not exceed that produced by a simmering burner on a gas stove.

During the seven months of the year when windows are closed and heat is used to keep the kitchen warm this small amount of heat would be a decided advantage; during the remaining five months when the windows are usually wide open any increase in

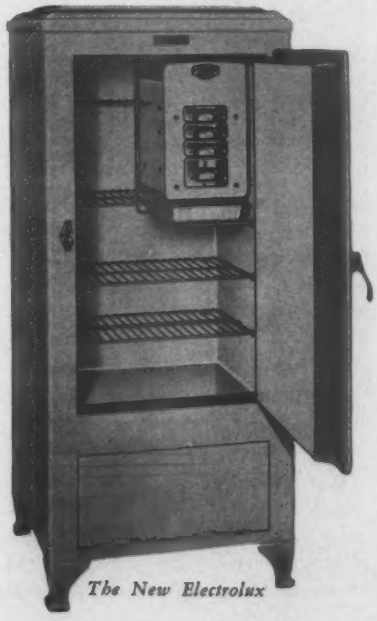
The new refrigerator put to service

temperature in the room can hardly be measured.

The advent of the air-cooled refrigerator by its simplicity of only having a gas burner and gas thermostat renders installation easier; in fact relieves the installation from the necessity of employing licensed plumbers, thereby making the installation considerably cheaper. In view of the fact that there are only two parts in the gas circuit, namely the burner and the thermostat as on a modern gas stove, the service problem has of its own accord been halved.

This was done during the time when all they had available was water-cooled refrigerators in territories where water was at a premium.

The gas industry, generally speaking, has been slow to adapt themselves to the taking advantage of this piece of equipment. Metropolitan New York, of course, first extended itself and made the gas refrigerator known. From that time on the news traveled up and down the Atlantic Seaboard so that today in the major cities along this coast line refrigeration is being actively pushed. In addition, however, during the past year, notwithstanding the financial condition of the country, there have been about 80 gas companies that have sold more gas refrigerators in 1932 than they did in 1931.



The New Electrolux

During the past few years there has been a decided move on the part of the gas industry to secure dealer outlets. The gas refrigerator has played an important part in securing these outlets.

Dr. Murphy to Address Mid-West Industrial Council

THE meeting of the Mid-West Industrial Gas Sales Council at Chicago, Illinois, April 21, will have as one portion of its program an address by Dr. D. W. Murphy, Department of Engineering Research, University of Michigan, on the metallurgical research activities of the American Gas Association at the university.

This address will be for the most part a non-technical discussion of the work on the heating of steel in gas furnaces for forging and various heat treating processes. Among the problems to be presented will be those of the decarburization, burning, overheating and scaling of steel as related to the various factors, such as furnace temperature, furnace atmosphere and time at heat, which influence both the operation of heating steel and the quality of the product.

A. F. Kunberger

A. F. KUNBERGER, who had been chief chemist of The United Gas Improvement Company, Philadelphia, Pa., since 1923, and who had been in U.G.I. employ since 1910, died on February 10 at his home, in Swarthmore, after an illness of several months. He was 56 years old.

Mr. Kunberger was born in Germany, and received his technical education at the Stuttgart Polytechnic Institute. From 1903 to 1910 he was chief chemist of Baldwin Locomotive Works, following which he became connected with U.G.I.

Mr. Kunberger was a nationally-recognized expert on gas purification, and had several patents to his credit, one of which was on the process known as the "Kunberger Test for Oxides."

He had served on many American Gas Association committees and was chairman of the Association's chemical committee in 1925.

Abandon Plans to Use Natural Gas

NEGOTIATIONS for supplying Bay City, Mich., with natural gas from the Central Michigan fields have been dropped by the Consumers Power Co. and the city commission.

30,000 Refrigerators!

By E. J. Devlin

The Brooklyn Union Gas Company

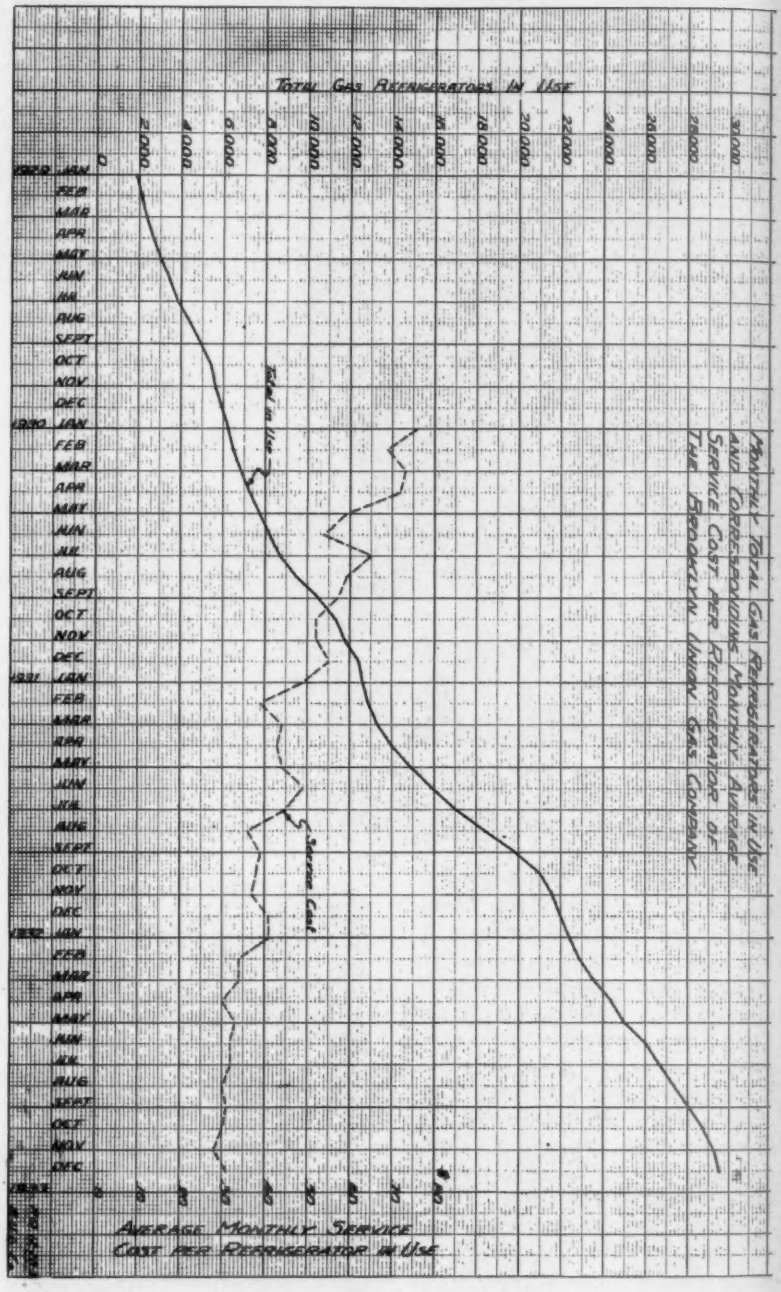
E. J. Devlin

AS of December 31, 1932, The Brooklyn Union Gas Company, Brooklyn, N. Y., had connected to its lines approximately 30,000 refrigerators, which represent a customer saturation of approximately 5 per cent in the domestic group. At an estimated yearly gas consumption of 18,000 cu.ft. per refrigerator, this represents an annual load of approximately 540 million cu.ft., or a yearly increase in gas sales of 2.5 per cent. This load is without exception the finest type of all-season domestic load that may be obtained for the following reasons. It is not only continuous for twenty-four hours in the day, but is practically constant and continuous during the summer as well as the winter period. All heating equipment, and to a limited extent gas ranges, are used more extensively during the winter months than during the summer months.

In the market that is now available with very little new building construction, every sale of a refrigerator increased the average gas bill about 1,500 cu.ft. Expansion in gas sales through the increase in sales per meter represents a most satisfactory method of growth particularly under the present economic conditions.

When gas for refrigeration is sold as above under a promotion form of rate, the effect is to reduce the average cost per M cu.ft. to the consumer.

Gas companies merchandising refrigerators must either provide service at a reasonable cost to the consumer or set up agencies through which such service is obtainable. Provided adequate means of servicing are furnished, gas refrigeration is not readily displaced by electric competition.



Graph No. 1

Gas companies intending to merchandise gas refrigerators should not delay in this activity. A refrigerator represents considerable investment and an owner is not likely to dispense with its use until it has given several years of service. Certainly a refrigerator will not be replaced as readily as some other appliance representing considerable less investment. The potential

market for refrigeration is being rapidly absorbed.

Growth of Refrigeration Business

Graph No. 1, on preceding page, shows the growth of the refrigeration business in Brooklyn, together with the servicing cost over the period. It will be noted that in January, 1929, there were approximately 1,900 refrigerators connected and that this has steadily grown to approximately 30,000 refrigerators in December, 1932. The costs of servicing in the pioneer days were high, amounting to 76 cents per refrigerator installed in January, 1930. However, since that time, improved water controls and better gas burners have been developed for the refrigerator, together with a more efficient service man by the utility, all resulting in a lower cost of servicing. Also, a large volume of refrigerators naturally can be serviced at a lesser cost per refrigerator due to a reduction in travelling time from one location to another.

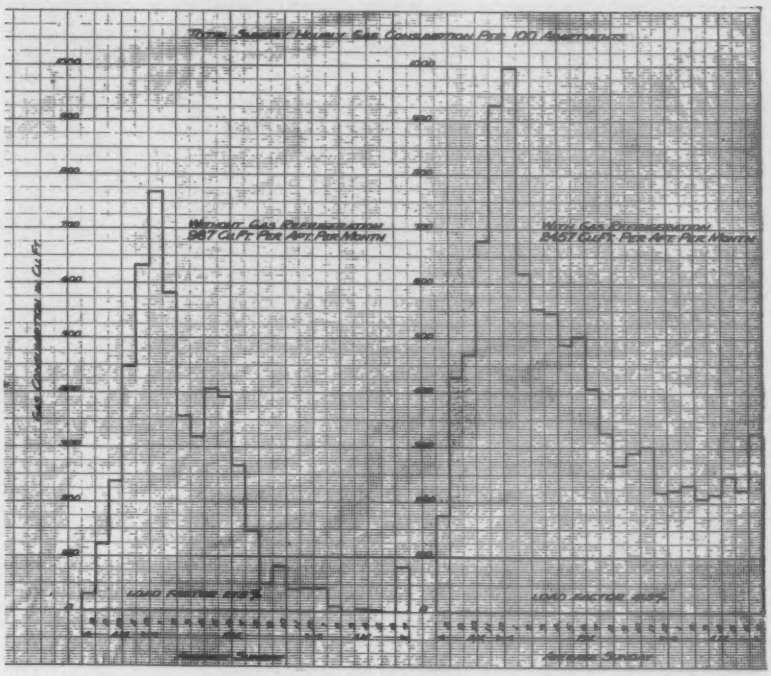
An analysis made by our Service Department of servicing costs indicates that more than 50 per cent of these costs results directly from "water troubles," which may, in turn, be laid almost entirely to unsatisfactory water conditions on the district.

This paper will point out the necessity of considering the load factor value of the refrigeration load. Whether the utility is a combination gas and electric company or only a gas company, every possible means should be used to improve the load factor of the distribution system. The load resulting from gas refrigeration produces an extremely high load factor which is extremely desirable as it permits a given distribution system to deliver to the consumer increased gas sales.

Load Factor

Graph No. 2 shows the "total Sunday hourly gas consumption per 100 apartments without gas refrigeration and with gas refrigeration."

In developing these curves, several apartments without and with gas refrigeration were selected. Meters were read hourly on an average Sunday. The hourly readings were then averaged and for ease of comparison the two curves were developed on the basis of 100 apartments.


Total Sunday Hourly Gas Consumption Per 100 Apartments
Without Gas Refrigeration
987 Cu.Ft. Per Apt. Per Month
With Gas Refrigeration
2457 Cu.Ft. Per Apt. Per Month
Load Factor 41.3%
Load Factor 27.5%
Actual Sunday

Graph No. 2

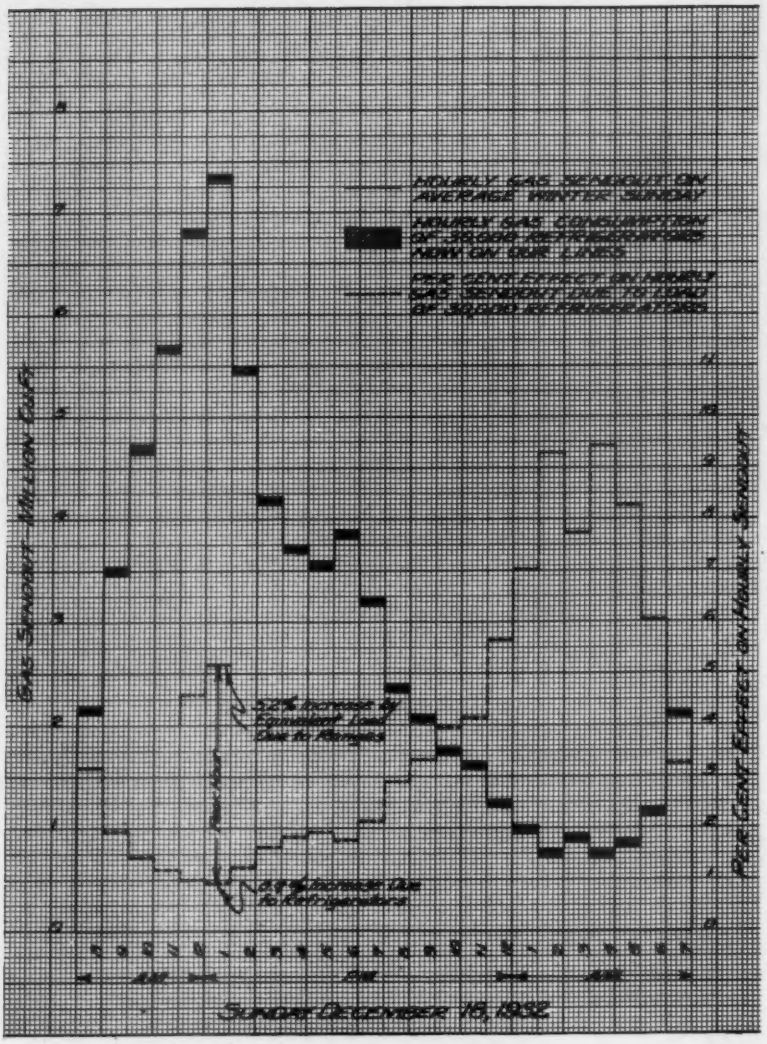
There are several interesting things indicated on this chart. The average monthly bill in the apartment without refrigeration was 987 cu.ft., whereas with gas refrigeration the monthly bill per apartment was 2,457 cu.ft., indicating a monthly load per refrigerator of 1,470 cu.ft., or a yearly load of 17,640 cu.ft.

The load factors of the two curves are for the apartment without refrigeration 27.5 per cent, and for the apartment with refrigeration 41.3 per cent. Load factor is obtained by dividing the gas consumption of the average hour by that of the maximum hour, and is a measure of how completely the distribution system is being used.

Comparing the gas sales as shown by two curves from midnight to 6 A.M., it is seen that in the graph showing consumption in apartments "without gas refrigeration" the gas sales are practically nothing; whereas in the apartments "with gas refrigeration" the average is approximately 225 cu.ft. As these graphs represent the consumption per 100 apartments, the average consumption is shown to be 2.25 cu.ft. per refrigerator. The results shown here, together with other tests, indicate that the gas consumption of refrigerators is continuous for the twenty-four hour period, and that the load factor is approximately 100 per cent.

Graph No. 3 shows the effect of 30,000 refrigerators on the 24 hourly load curve of the company's system send-out for a typical Sunday in December.

The solid line shows the hourly gas send-out based on system send-out figures of The Brooklyn Union Gas Company, for Sunday, December 18, 1932. The cross hatched portion indicates the hourly gas consumption of 30,000 refrigerators, estimated at 2¼ cu.ft. per refrigerator and based on results of studies shown in Graph No. 2. The dotted curve indicates the per cent effect on hourly gas send-out due to load of 30,000 refrigerators; that is, 67,500 cu.ft. and is obtained by dividing 67,500 cu.ft. by the hourly send-out. This dotted curve shows the added use to which the distribution system is put for each hour of the day. From 12 midnight to 6 A.M., the usefulness of the distribution system is increased from 6 to 9 per cent, whereas on the peak hour from 12 noon to 1 P.M., the time during which it is more difficult to maintain pressures, the


HOURLY GAS SENDOUT ON AVERAGE WINTER SUNDAY
HOURLY GAS CONSUMPTION OF 30,000 REFRIGERATORS NEW ON OUR LINES
PER CENT EFFECT ON HOURLY GAS SENDOUT DUE TO TEMPERATURE
Gas Sendout Million Cubic Feet
Per Cent Effect on Hourly Sendout
SUNDAY DECEMBER 16, 1932

Graph No. 3

added load is but nine-tenths of 1 per cent. A more satisfactory type of load could hardly be desired. The growth of the load from 12 midnight to 6 A.M. has always been slow. A study was made of the average hourly send-out in M cu.ft. from 12 midnight to 6 A.M. for the months of April from 1913 to 1928, also the send-out in cubic feet for the months of April, for the years 1913 to 1928 inclusive. We find that the average hourly send-out for the hours from 12 midnight to 6 A.M. had increased in 1928 over 1913 by 10.76 per cent, whereas the monthly send-out for April, 1928, increased 84.84 per cent over the send-out for April, 1913, which condition indicates an increasingly poorer load factor, partially due to the fact that during the hours 12 midnight to 6 A.M. the growth in use of the distribution facilities has not kept pace with the other hours in the day.

In respect to added use of distribution system between 12 midnight and 6 A.M., there has been accomplished with refrigeration in a period of five years, almost as much growth as developed in fifteen years between 1913 and 1928.

Equivalent Load through Gas Ranges

If the gas consumed by 30,000 refrigerators, amounting to 540 million cu.ft., had been sold through gas ranges; that is, the equivalent load representing 2½ per cent increase in sales had been produced through the sale of gas ranges, Graph No. 3 indicates that at the peak hour the demand on the distribution system would have been increased 5.2 per cent instead of .9 per cent resulting from refrigeration. The estimate of maximum hourly consumption is based on the results of the studies on Graph No. 2 in reference to the apartments "without gas refrigeration" and the consumption per apartment established there is used as the basis of the estimate. It would have meant that instead of selling 30,000 refrigerators, it would have been necessary to have sold 49,240 new gas ranges. To reach this number of new consumers who would use new ranges would have required large expenditures in services and meters, as well as main extensions to outlying territories. It is also very probable that with the limitations on buildings today, there is not this amount of new potential business to be had. Therefore, to have gained an equivalent load through the sale of gas ranges would have required additional distribution facilities to take care of the estimated 2.5 per cent increase send-out together with added investment in services, meters and main extensions; in addition to additional customer costs directly resulting from new consumers. The writer does not recommend against main extensions but wishes only to point out the desirability of increasing the sales per meter particularly when, in the case of gas refrigeration, it can be accomplished with practically no added capital investment.

Conclusion

In merchandising 30,000 refrigerators we have added to our lines domestic load aggregating 540 million cu.ft. annually. This 2½ per cent increase in sales has been added with the least possible added capital investment in service, meters and mains together with a material improvement in Distribution System load factor. Such a domestic load resulting from a wide distribution among our consumers is probably more dependable and is not subject to the competition that an equal

(Continued on page 157)

England Introduces Infra-Red Rays of Gas Flame to Fight Disease

EARLY in February, the Croydon Gas Company, Croydon, England, staged an effective display in its showrooms, which was described as "Health in the Home" week.

This display, which was arranged in conjunction with Messrs. Radiation Ltd., prominently featured a large number of the latest type of small clinical gas lamps, manufactured by the Davis Gas Stove Company. These were arranged in an attractive manner round a central cut-out figure, as the accompanying photograph shows. Most of the lamps were connected and in operation and placed in such a way that the infra-red rays were directed upon visitors who entered the building. Eighteen lamps were included in the main display, together with appropriate slogans, literature, and posters, pointing how these appliances afford a splendid method of home treatment for such complaints as rheumatism, neuritis, acne, and kindred troubles. Every opportunity was taken of impressing on the public that gas is good for health.

At the same time, further lamps were displayed in the various windows of the showroom, while two windows were devoted entirely to forceful displays to indicate the applications of the lamps, these being lighted at night to shine upon the cut-out figures in a realistic manner. Valuable cooperation by local furnishing companies assisted the gas company in completing the general effect, and an expert demonstrator was present throughout the period of the exhibition.

The majority of the lamps exhibited were of the small type on a porcelain stand suitable for home use, but an example was also shown of the larger type on an extended stand for medical clinics and similar applications. The lamps are complete with stand, wire guard, and special flexible rubber tubing designed to avoid the possibility of the flame being extinguished as a result of the tube being pinched or trodden on accidentally.

Croydon display of clinical gas lamps

In this clinical lamp the gas is burnt in such a way as to produce a highly aerated bunsen flame. Combustion takes place within and on the outer surface of a refractory radiant specially treated with a compound of silica, clay, and other inorganic compounds which ensures increased emission of short infra-red energy and the provision of heat of good penetrative value. The incandescent radiant is situated near the focus of a parabolic mirror, so that the emitted energy travels outward in a slowly diverging beam. The material of the reflector was selected to ensure low absorption of the higher frequency energy. The gas and air supplies to the burner are adjusted by means of regulators provided at the end of the mixing tube which projects through the back of the reflector.

It is now generally recognized in England that radiant heat rich in short infra-red rays is beneficial to health. Such rays penetrate the outer layer of the skin and stimulate the circulation of the blood in the minute capillaries just below the surface, which alleviates the pain and discomfort of rheumatism, lumbago, neuritis, etc., while treatment with these rays is successful in cases of acne, boils, and similar complaints. Hitherto sufferers from these troubles have received, according to the *Gas Journal*, irradiation treatment in hospitals and clinics; but this radiation home clinical gas lamp and heater now makes treatment available in the home and at small cost. It is so simple and safe that anyone can use it with complete confidence. It is merely necessary to light the lamp, adjust it to the most comfortable position, and expose the affected part to the rays.

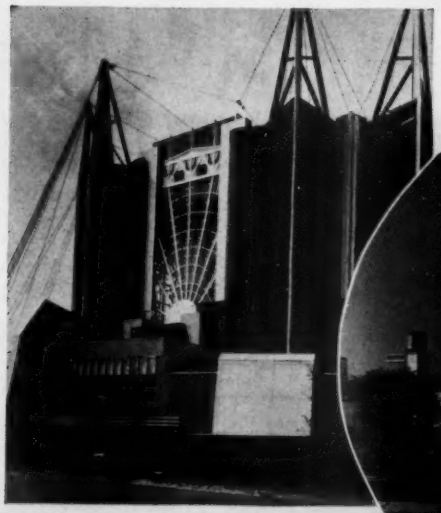
A further advantage of the lamp is that, when it is not being used for actual treatment purposes, it can be employed as an efficient portable heater in any room where there is a gas supply.

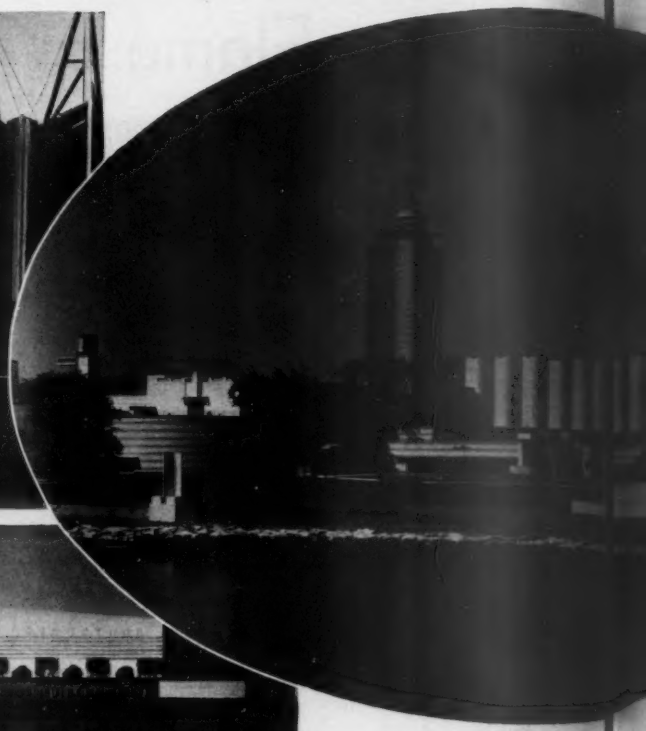
The distance at which the heater should be placed from the patient varies from person-to-person and with the part of the body exposed. With normal adjustment of the gas supply it will often be found suitable to place the heater from 2 ft. to 2 ft. 6 in. distant from the patient. The object is to effect a high degree of flushing and sweating by general irradiation of the portion of

(Continued on page 157)

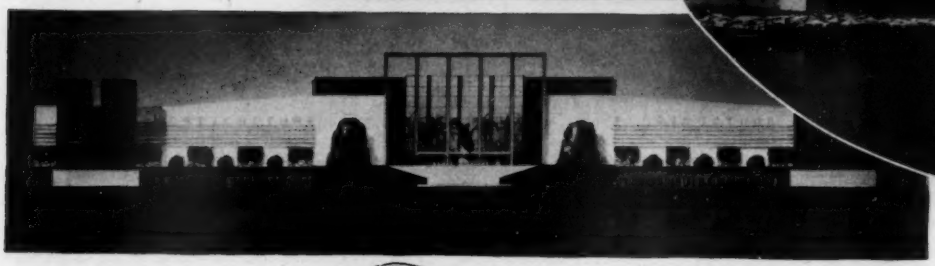
Chicago's Wonder City Awaits Offic

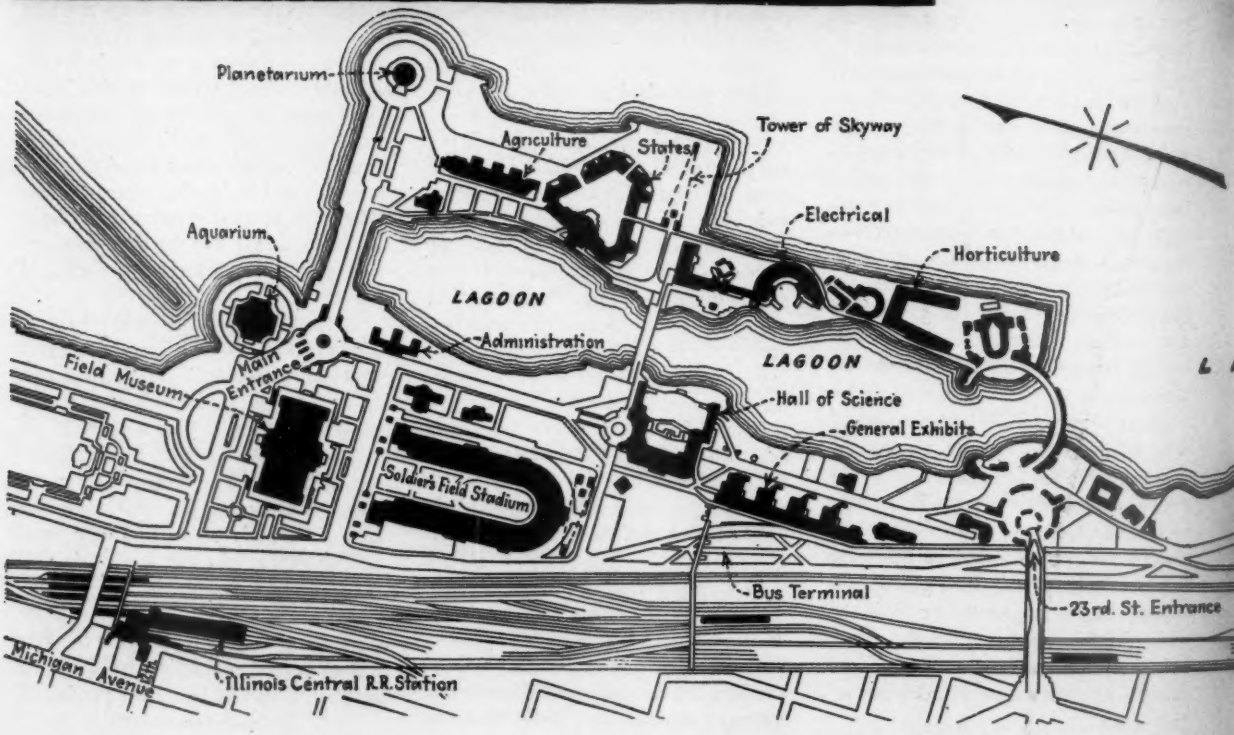
Right—Travel and Transport Building's Suspended Dome.





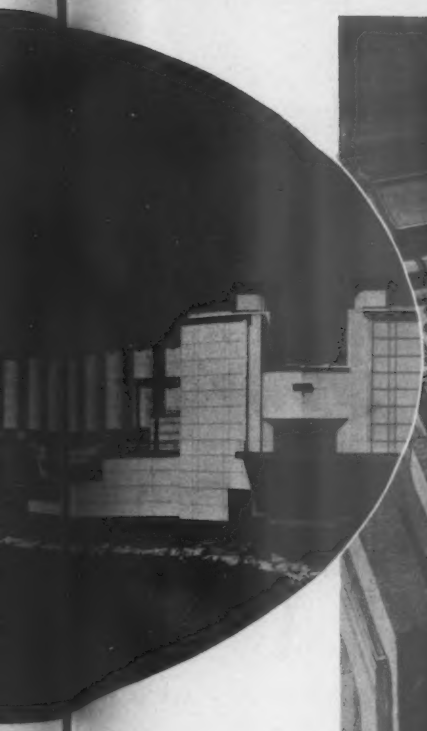
Below—Horticulture Building.



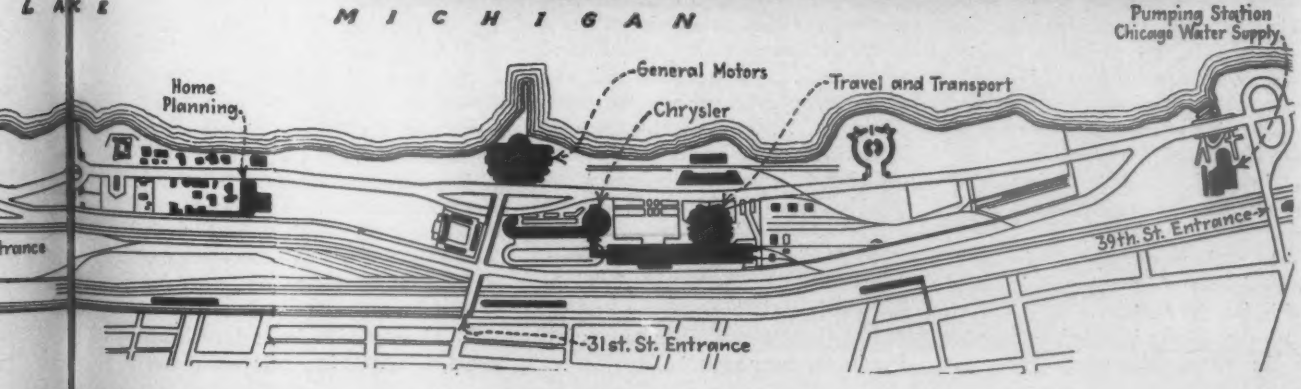


Ground and Building Layout of the Centy

ffic Opening June 1—A Few Glimpses



Right—View of a Section of the General Exhibits' Group of Pavilions to the North of the Home Planning Hall.



e Century of Progress International Exposition

Gas Industry Increased Sales 10% in Money Panic of 1907

AFTER a phenomenal period of high-handed finance, a period marked by transactions that sound like fairy tales, punctuated by newly fledged millionaires and the meteoric displays of money-drunk brigands, the whole structure topples because, forsooth, a bank happens to be caught with but a few millions of cash in its vaults and stops paying it out. Then, in a day, it is discovered there is not enough cash in circulation to do business with and every man grabs his pocket and says, 'You can't have mine.' So, to make a logical climax, we have a little panic."

In those words, the late E. C. Brown, president and editor of *Progressive Age*, a former trade paper serving the gas industry, commented editorially on the debacle of 1907. Answering the question then on the lips of every gas man, "What's going to happen now?" Mr. Brown observed confidently:

"The prospects are that the gas output will increase, whatever the depression may be, for gas is a public necessity and is not in any sense purchased as a luxury. In the same way coke will displace anthracite coal, being cheaper. It is therefore good policy to redouble efforts along the line of securing new consumers instead of joining in the knee-quaking that some businesses are now affected with."

And that is precisely what the gas industry of 1907-1908 did. It brought under control its temporary state of the financial jitters, injected a new spirit and accelerated momentum into its sales activities, then under the sway of the extraordinary successes of Henry L. Doherty's new business departments—the sensation of the day in commercial gas circles—and set about to hold its lighting load and capture a big slice of the cooking and water heating business.

The trade papers do not give us a detailed story of how the gas industry did it, but the figures are on record to prove that during the blackest months of the panic, November, 1907, to March, 1908, during which period $431,000,000 of Clearing House certificates were used in lieu of currency, the industry actually checked up an increase of 10.7 per cent in sales of gas over the corresponding months of the previous year. In fact, there was no serious setback during the panic, except that there were fewer extensions, and additions to plant facilities were held to a minimum.

Singing away the 1907 blues on the combination pianola-stove—a British suggestion

"Now," enthusiastically commented Editor Brown in his issue of May 1, 1908, "that is the kind of an industry to pin one's faith to and invest one's money in, assuming always good management. . . . The gas business is one of the most stable among industrial enterprises. . . . For an industry having such a general reputation for conservatism, to actually forge ahead when other businesses are frightened into inactivity, is a record for development in the right direction to be viewed with gratification. Let us be proud that it has stood up stalwart under one of the most severe tests given to our industries for many years."

Today's depression and the money panic of 1907 have some features in common yet there are noteworthy differences. The 1907 crisis occurred at a time of industrial depression, but it neither lasted so long nor reached the depths of the present one. Moreover, the device of a bank holiday was not applied in 1907. The banks had to stand up and take it, with such help as the elder Morgan and the United States Treasury saw fit to proffer. For days on end the banks were forced to withstand runs, the weaker ones falling, and the more liquid or better managed, paying out vast sums.

The week of October 20, 1907, marked the collapse of public confidence and the biggest failures, the Knickerbocker Trust Company of New York crashing on October 22. Theodore Roosevelt was in the White House and George B. Cortelyou, now president of the Consolidated Gas Company of New York was Secretary of the Treasury.

Mr. Cortelyou hurried to New York with $25,000,000 in public monies and

the pledge of more. On October 25 the New York Clearing House Association voted unanimously to issue Clearing House certificates to supplement the inadequate reserves of legal tender, and other cities quickly followed example. Savings banks operated with their 30-to-90-day withdrawal rules in effect, although they were not rigidly observed.

By the following Monday, signs of returning sanity were faintly visible, although the country as a whole suffered acutely from the shock for at least eight months.

Examination of the gas trade press during these eventful months reveal a strong editorial support for President Roosevelt's bristling attack on stock gambling, predatory wealth and other corporate abuses somewhat reminiscent of our present evil days. "We seek to control law-defying wealth" said the President in his message to Congress on January 31, 1908, and he concluded by looking forward to the day "when greed and trickery and cunning shall be trampled under feet by those who fight for the righteousness that exalteth a nation."

Taking up the cudgel in the President's behalf, one of the trade papers declared, "the financial policies of corporations had a limburger odor. Financiers belonged largely of the high-finance order who took valuable considerations and gave nothing but prospects in exchange.

"We are now at the settling day. Who will buy these prospects? In January, 1903, Consolidated Gas sold at $212; it now (December, 1907) sells as low as $80 under excellent operating conditions. Peoples Gas of Chicago sold at $104; now it sells for about $70, under very much better operating and political conditions. There is nothing wrong with the supply and demands of products but there is a great deal wrong with finance and that is the defect that must be remedied before we can get back to that confidence in the security of investments which every holder has a right to expect."

The first Clearing House certificates were issued on October 26, 1907, and the date of their final redemption was March 28, 1908. This period marked the nadir of the 1907 panic—five months in all, in which four of them brought an increase of 10.7 per cent in sales of gas, reported by 174 gas companies.

During the worst of the panic days, November 1, 1907, to March 1, 1908, we find that while extensions in the industry dropped some $614,000 and the value of residuals sold was $30,000 less, the value of gas sold increased $1,090,000 and sales of gas jumped 1,200,000,000 cubic feet.

The above figures cover operations of the manufactured gas industry only. At the third annual meeting of the Natural Gas Association of America, at Kansas City, May 19-21, 1908, President J. C. McDowell reported an increase of 75,000 meters during the year and said that "natural gas is the only fuel used by about 7,500,000 people in the United States." New investment in the business in 1906 exceeded that of any previous year, he stated, but he gave no indication of conditions in 1907.

"There is no such thing as hard times in the gas industry" announced one of the gas trade papers in the late summer of 1908 when "knee-quaking, debilitated vertebra and similar disturbances" of the 1907 panic had largely subsided. "We are on the threshold of a great movement which will tend to better things for all of us. . . . People will give up electricity, automobiles and theaters, travel and even beef before they will do without gas. There is no time like the present to push gas."

Two years later, in 1910, the gas industry was enjoying a boom. Gas sales had increased from 15 to 25 per cent and everything was on the up-and-up.

Effect of mild weather and gas ranges on the coal men of 1907-1908

Executive Evaluation of Sales Activities*

E. M. Tharp

By E. M. Tharp

Vice-President,
The Ohio Fuel Gas Company

RECENTLY we have had our attention aroused by the idea that it is the human being in his capacity as a consumer who is responsible for the machinery which we call "the economic order," or at present, "the economic disorder," rather than the human being in his capacity as a producer. On every hand the evidence manifests itself that it is the consumer in his capacity to want things and to pay for them who dominates the situation relative to all production and distribution, standards of living, prices and markets. Civilization itself has resulted from persuading the consumer to want more and better things, contributing to his comfort, convenience and happiness.

Wherever in the past the consumer has been forced or compelled in any way to accept products or services or conditions of his supply without choice, he has rebelled and as the status of his education and independence has advanced, this faculty of rebellion has quickened. Modern democracy has been defined as a governmental plan with the objective of giving people what they want. As administrative services get out of rhythm with these desires, they fail.

While we are not concerned now with a solution of the old problem of which came first—"the hen or the egg"—ordinary observation suggests that in the complex evolution of human affairs, a need has been identified and then a commodity or service has been created to meet that need. It never has been sufficient to create that which would supply a need, for in every instance, by some form of educational work, persuasive process, advertising or selling, we have been compelled to create a recognition and a consciousness of the need and a desire to have it fulfilled.

In the pioneering promotional period of our own industry introduction was accomplished by the selling by trial method. A service was created, its use started and the business largely left to the process of one consumer telling another. Development of the facilities to maintain and extend this service has demanded so predominating an amount of financial and engineering technique that it is no wonder the industry came to be motivated by exact-minded men. In their technology, they reasoned from cold facts, and if this revealed there was something out of adjustment with their sales, they sought with engineering precision to correct it by setting up, separately and apart from all other affairs of the company, a new business department. If the public showed discontent with the service, they sought, with a rationalized exactitude, to set up a public relations machinery to meet the situation. If politicians assaulted the rate structures, lawyers and engineers were retained to argue interminably before commissions and courts over rate bases, depreciation, amortization, going concern, rates of return, etc. None of these processes dealt with the consumer relationship involved as though the consumer were an average human being with ordinary emotions and natural interests and somewhat resentful of "being told."

Distinct Phase of Growth

It should not be thought that it is intended to condemn all these efforts to familiarize the public with our problems and purposes. They have been productive of good. They represent a very distinct phase of our growth. They have accomplished better understanding with some elements of the public. But they have left out any concept of value upon which the consumer can base his satisfaction. All of the arguments about plants and costs and the supporting decisions of courts and commissions only add to the confusion in the public mind. If the courts say the gas company is entitled to a new rate or sustains the old one, it is too frequently believed the decision is somehow based upon the wrong kind of laws or court methods and remedy is sought in further legislation.

The terms expressive of our business have not been consumer terms. They don't express his benefits or advantages. The very regularity of meter reading, bills and payments, irritates because it smacks of compulsion. Our methods have not paid the consumer the compliment he demands of "being sold." We have not treated him as the automobile manufacturer or the radio manufacturer or any other supplier has treated him. We have not stirred in him a desire and appreciation for our product. While we have seen that the desire to ride is more important to the manufacturer of motor cars than the financial statistics of his business or the engineering technique of his production problem, it has never seemed to mean anything applicable to our business.

We men of the gas industry feel that we have done and are doing a very remarkable job in providing an unexcelled fuel service, but if there is to be opportunity to carry on and extend our industry, this job will have to be recognized and appreciated by the public as a good job. This cannot be accomplished until we give proper attention to the very important element of human nature as it affects our companies. It calls for salesmanship and for sales-minded management. There is no problem of engineering or finance more important to the executives of our companies than the problem of sales.

Whenever in the past we have given consideration to sales, it has been as an appliance-merchandising or load-build-

* Address before the Eastern Natural Gas Regional Sales Conference, Pittsburgh, Pa., March 3, 1933.

ing activity. Never has it occurred to us that our industry needed selling, that the value of gas as a fuel service needed selling. The tendency has been to look to the cost of the service and to disregard the value of the service. Even when the selling method was applied through advertising to a local rate situation, the arguments were confined to the company's costs.

About three years ago, we undertook the selling method in the settlement of local rate situations. There were many of these local rates already involved in litigation, but it was thought that if the public could be sold on the value of gas, rate ordinances could be obtained and the cases dismissed. Employees were carefully trained in a sales presentation of value of service. A definite support was developed before municipal officials were approached, so that when they were asked to approve a new rate contract, it was not just political dynamite without ballot box backing. More than two hundred cities and towns have given us advanced rates as a result of this method in the last three years. The laws in Ohio provide for referendum of a utility rate upon petition of ten per cent of the voters, but in only one instance in the three years did such a referendum occur. Whenever a rate has been obtained by this method, it has been found that the public is satisfied because the proposition is expressed in terms of its own use and understanding of the value of the service.

Public Entitled to Facts

Since the public buys gas and pays its money for it very regularly, it is entitled to some very concrete ideas relative to its value. If such facts are not supplied by a selling method in terms of the consumer's use, he cannot be blamed for devising his own ideas with respect to rates handed down by decision and without virtue of salesmanship.

We have been merchandising appliances since 1927, and on several occasions harbored a feeling that we were doing a fairly good job of it. But it remained for a little old lady who came into our appliance store one day to remind us of how inadequate was our job of selling gas. She explained that her means were quite limited, compelling very close budgeting, and that she would like some literature upon the advantages and economies of gas fuel. Well, we had an abundance of the most attractive circulars and booklets on gas ranges, gas refrigerators, gas water heaters, gas heating equipment of various kinds, but we didn't have anything on the value of gas. There had been a lot of material prepared on this subject for employee education, but nothing for selling the public. We thought we were sales-minded, that we were presenting our case to the public in a modern selling way, but here was our main product and service without a single piece of selling literature.

With the idea of meeting this situation, we began the publication and distribution of a miniature newspaper called "The Gasette." It is issued monthly and delivered by the meter reader. Short articles on the use and value of gas are presented. There is always a cartoon picturizing a phase of gas value. Home management suggestions and recipes make up the customer interest material. We are led to believe this is proving effective, because customers complain if they miss an issue.

Every employee is being regularly coached in selling the value of gas. They are urged to develop contact opportunity to sell—not to defend or explain, but to promote. This has involved first selling the employees and keeping them sold in the face of political agitation to the contrary.

The basis of our value of gas presentation is that natural gas is worth $3 per thousand cubic feet for refrigeration, because there is no substitute that is so effective at less cost. It is worth $2.50 per thousand cubic feet for cooking, because no other fuel or service will save the customer anything at such a price for gas. It is worth $1.25 per thousand cubic feet for water heating, because at such a rate gas is the cheapest and lowest cost fuel for this purpose. Natural gas is worth 75 cents for space heating, because of its practical advantages and economies. Not until we come to the matter of fuel for central house heating do we find it necessary to talk of value of gas below 75 cents. Haven't we always applied such methods of selling to our industrial business? Why not the domestic? If our rate schedules work out below these values of gas figures, such margin of difference is a sound and understandable basis for customer appreciation and satisfaction.

Employees Work Is Effective

This general sales plan actively involving every employee of the company is supported and checked by our home service operation, which cross-section surveys for customer reactions by means of home calls. These girls are our best value of gas salesmen. Their work also includes regular contacts with newspapers and the furnishing of "Women's Page" material. More than one hundred newspapers in our territory used their material during the last year. Our Home Service reports reveal the strength or weakness of employee sales work and suggest corrective measures.

Effectiveness of the employees' activity in selling is very tangibly evidenced by the fact that their leads were responsible for 43 per cent of our total merchandise sales last year. Except in one campaign a year, employees do not receive any bonus or other compensation for prospects sold. In other words, selling is a general policy and responsibility of every department and employee of our company.

Recommendations have been made by various authorities in our industry that rates for house heating service should be reduced by way of holding this load. Our study of this question leads us to believe this is not a necessary first step because even a reduction of 10 or 15 per cent would probably not affect results. An engineering survey which we have been making of present gas-fired installations suggests that more can be accomplished by a check-up and improvement of installation efficiencies than could be accomplished by any rate changes which might be afforded. We found, for instance, that low cost changes could be made which would effect savings as much as 30 per cent. This program was initiated by engineers of our company as a result of making them realize the importance of the rates and sales problems.

Selling is the most essential problem and activity of any company today and is particularly important to a gas company because it has been so long neglected. While every other business sells and sells, while politicians pro-

mote and agitate blatantly selling misinformation, we have sat in conference, consulted attorneys, worried and stewed over selling, dodging, side-stepping, starting, quitting, beginning again. There has been too much pussy-footing about the values of our business. We are too frequently apologetic—too often making explanations—too much on the defensive. How can we expect the public to believe in us if we don't show faith in ourselves and confidence in our proposition?

A manifestation of this wavering is presented in the discussions and plans tried relative to dealer cooperation. How can we assign to outside agencies responsibility for the service to the public which is our obligation? How can our service be satisfactory in a poor appliance, in an unsafe appliance? If we abandon leadership in appliance business, how will standards be established and maintained? Won't the public be the greatest loser? Is our obligation to the dealer or the public?

It seems to me impartial and unprejudiced analysis of this question would suggest that the public interest would be far better served by legislation compelling utilities to merchandise as a guarantee of satisfactory customer service, rather than to prohibit them from merchandising. That there are three parties at interest in this question is too often overlooked. The public interest is the greater interest, because it is involved with the safety, the efficiency and the economy of consumers' use of utility service.

Gas Service and Safety

Nobody sells telephone equipment and nobody questions the advantage to the public of the telephone company's insistence that only its own apparatus shall be used. Can you imagine what would happen to telephone service if every variety of equipment was hung on its wires? This is an absolute parallel except that the only reason supporting the telephone company is service, whereas with the gas industry it is both service and safety. The chief difference is that the telephone company started that way and has been consistent. There may now be too many vested interests involved to change the policies of the gas industry to that extent, but we are not relieved of our obligations to our consumers. Their service depends upon our leadership in merchandising. This does not involve allowing the dealer no chance to share nor does it imply subsidizing the dealer.

Our company is not without some dealer complaints, but they have not been based upon unfair merchandising practices. We have maintained liberal mark-ups, no trade-in allowances and deferred payment terms that were barely competitive. The fault is found with our aggressiveness which they can meet competitively, but which, after all, creates increased desire for better appliances to their advantage as well as ours. When we set the pace for the dealer, we are teaching him to be a more successful merchant, we are developing a greater demand and quickening public consciousness of modern appliance possibilities.

Who would pay the cost of pioneering new uses and new developments in appliances if the gas company didn't do it? If we leave the staples, so-called, to the dealer, who will say when a staple is a staple? Is it the range of yesterday, the range of today, or the range of tomorrow? And how about electric cooking competition if we leave the range to the dealer? Why shouldn't we stand for sane and business-like merchandising of the appliances involved with our service and quit being defensive about it? Let the public know that we are concerned with serving their interests in the most modern, efficient and economical manner. When the facts are known, our case is sounder from the politician's point of view, than that of the dealer.

An alert, well-trained, selling organization is one of the most favorable influences our companies can have in the communities which they serve. Even if our meter readers, service men, bill passers and collectors were all we desired them to be, salesmen would still be our most favorable contacts because they can fit more readily into the mental pace of the customer. It is the natural habit of salesmen to present their facts convincingly and persuasively. They understand and specialize in favorable human relations more than any other class of employees and the effect of their activities is of great advantage aside from definite appliance sales results.

Rate Economies Sought

The public interest demands that we develop our load as it is only by so doing that revenues can be maintained so as ever to promise rate economies. The domestic business is not going to be developed or even maintained unless we do it, and it can be accomplished only with aggressive salesmanship. Before our company entered upon merchandising, the annual sales per meter had established a sharply declining trend. Selling activities broke off that trend abruptly and turned sales per meter upward again. Discouraging conditions of the last several years have simply demanded more aggressiveness and resourcefulness. They should never suggest let-up or quitting. While industrial load has been hard hit, we managed to replace losses so consistently that our volume last year was 8½ per cent ahead of the previous year. The revenue was off only 1.6 per cent.

Recently, we suspected losses in our house heating load so we had the meter readers check up, and found there were losses in some localities but gains had been made in others which indicated we were holding our own. Electric range competition hasn't gone far beyond electric company employees and won't go far in our territory. We are making some replacements even to electric company employees.

If our experience is teaching us anything, it is that the gas industry must get out its axe and blaze new trails. Tradition and precedent are our greatest menaces. The application of new methods and new ideas to the development of our business contains our real opportunity.

While in our own organization we are more sales-minded, we have not really started to sell. We are only just getting organized and trained to sell. Plans for the present and even the near future are rather definite. Man power, carefully selected, is being coached and expanded. Essential information relative to possibilities, cost of holding load, cost of expanding load, is being analyzed, that the job may drive effectively toward desirable objectives without too much waste motion or cost. Some of our possibilities are indicated by the fact that only 1 per cent of our customers have gas

(Continued on page 164)

Affiliated Association Activities

Oklahoma Utilities Association

R. J. Benzel

NOTWITHSTANDING adverse conditions, beginning practically simultaneously with the bank holiday, the fifteenth annual convention of the Oklahoma Utilities Association at Oklahoma City, March 6, 7 and 8, had a registration of 500 and ranked with the best meetings in the history of that organization, which includes all branches of the utility industry in Oklahoma.

In the opening event, a first-aid contest, the Oklahoma Natural Gas Corporation lost the Oklahoma Utilities Association cup to the Southwestern Bell Telephone Company of Oklahoma City. Other teams competing represented the Oklahoma Power & Water Company and the Oklahoma Gas & Electric Company, which finished second and third, respectively. The contest was witnessed by about 400 people. Four problems were put on with attractive entertainment features to hold interest.

Features of the general program of particular interest to the gas industry were the talks on air conditioning by Thomas G. Storey, industrial engineer of the Oklahoma Natural Gas Corporation; explanation of the University of Oklahoma's new course leading to the degree of natural gas engineer, and the address on "Utility Industry Trends" by Alexander Forward of New York, managing director of the American Gas Association.

Mr. Storey explained the true meaning of air conditioning, correcting the general impression that the term refers primarily to air cooling. He then discussed in detail the load building possibilities of the air conditioning field and closed with a brief description of air conditioning equipment thus far developed. In the first division of his talk he showed the essentiality of air conditioning as a factor in bodily comfort and health as proven by mortality statistics for a recent year showing 13 per cent of all the deaths were caused by respiratory and associated diseases.

His market analysis, built up from extensive figures, indicates a present prospect list of about 600,000 residences in the country with approximately 18,000 homes being added annually to this list. He quoted one estimate that 600,000 units could be sold to this market in the next five years, but expressed his own opinion that 200,000 would be a reasonable anticipation for five years with 600,000 possible in ten years.

He estimated that of a million families living in apartments possibly 60,000 have an income greater than $3,000 and that 10 per cent of these would be prospects for air conditioning units. The potential commercial market was analyzed in detail and held to promise real business for the industry. He quoted a September, 1932 report of the Edison Electric Institute (formerly N.E.L.A.) as indicating an electric power demand, not including residences, of approximately 2,200,000 horsepower to produce 1,315,000 tons of refrigeration, giving a total yearly consumption of approximately 1,750,000,000 k.w.h. His discussion of equipment specified two general types of installation, these being the central type for large buildings with ducts distributing the conditioned air and the small type of conditioner for use in small establishments.

Keen interest was shown in the new natural gas engineering course announced by the University of Oklahoma. He stated that his own company and large natural gas companies generally would offer employment rapidly to qualified natural gas engineers. Mr. Hendee was followed by Professor W. H. Carson, of the university, who exhibited slides showing the indoor and out-door laboratory equipment for this course including the Oklahoma City oil and gas field within fifteen miles of the university.

Major Forward acknowledged cooperation given the American Gas Association by the Oklahoma Utilities Association and expressed the belief that regional and local associations offer valuable aid in extending the usefulness of any industry. He presented figures on the gas industry for 1932, not previously announced, based on preliminary estimates of the American Gas Association, showing that natural gas utility sales in the United States declined 8.6 per cent compared with 1931, but pointed out that coal lost 20 per cent and fuel oil 22 per cent.

Manufactured gas sales lost 4.8 per cent, natural gas losses being heavier because of the larger proportion of industrial natural gas sales in normal times. Domestic natural gas sales were off 4.5 per cent and industrial sales, 13 per cent, while commercial sales increased 1.9 per cent. Notwithstanding the drop in sales volume the number of domestic consumers declined only 1.6 per cent. Industrial consumers numbered the same as for 1931, while commercial consumers increased in number 1.3

Convention Calendar

April

3- 5 American Gas Association, Distribution Conference
William Penn Hotel, Pittsburgh, Pa.

10-12 Mid-West Gas Association
Fort Des Moines Hotel, Des Moines, Iowa

27-28 Missouri Association of Public Utilities
Hotel Jefferson, St. Louis, Mo.

May

2- 4 A.G.A. Southern Regional Sales Conference
Washington, D. C.

2- 4 Southern Gas Association
Washington, D. C.

2- 5 Chamber of Commerce of United States
Washington, D. C.

9-11 Pennsylvania Gas Association
Wernersville, Pa.

17-19 American Petroleum Institute, Mid-Year Meeting
Tulsa, Okla.

22-23 American Gas Association Joint Committee Conference of Production & Chemical Committees
Hotel New Yorker, New York, N. Y.

May 29 to June 1, National Fire Protection Association
Milwaukee, Wisc.

May 30 to June 2 Institution of Gas Engineers (British)
Liverpool, England

June

1- 2 American Gas Association, Executive Conference
Chicago, Ill.

12-15 National Association of Purchasing Agents
Chicago, Ill.

26-28 Advertising Federation of America & Public Utilities Advertising Association
Grand Rapids, Mich.

26-30 American Society for Testing Materials
Chicago, Ill.

26-30 American Society of Mechanical Engineers
Chicago, Ill.

26-30 American Institute of Electrical Engineers
Chicago, Ill.

September

18-19 Canadian Gas Association
Ottawa, Ontario

Wk. 25 International Gas Conference and Fifteenth Annual Convention, American Gas Association
Stevens Hotel, Chicago, Ill.

October

Wk. 11 National Association of Railroad & Utilities Commissioners
Cincinnati, Ohio

24-26 American Petroleum Institute
Chicago, Ill.

per cent. Revenue from domestic sales was off 4.5 per cent, commercial sales .7 per cent and industrial sales 18.9 per cent.

Oklahoma sales figures checked rather closely with the national. Oklahoma domestic consumers were 1.7 per cent fewer, commercial consumers 8.9 per cent more and industrial consumers gained 13.8 per cent. The speaker said of Oklahoma:

"Your business was off like everybody else's, but you managed to serve more people. Such a result could have been attained only by excellent salesmanship and an indispensible service to the public." He referred to taxation of public utilities as having reached the point where it seriously threatens its solvency.

The Oklahoma association elected as its president for the ensuing year R. J. Benzel, of Oklahoma City, vice-president of the Southwestern Bell Telephone Company. The presidency of this association rotates between its several divisions, Mr. Benzel succeeding R. J. Daugherty, of the gas division. H. B. Cobban, of Miami, Oklahoma, electric railway division, was elected first vice-president and C. O. Dunten, Sand Springs, Oklahoma, electric division, second vice-president. W. R. Emerson, of Oklahoma City, was re-elected treasurer and E. F. McKay, of Oklahoma City, was re-elected manager.

The gas division of the association elected R. W. Hendee of Tulsa, chairman and H. L. Montgomery, of Bartlesville, to succeed himself as executive board member for three years. The other executive board members representing the gas division are: C. D. Greason, Kansas City, Missouri, Gas Service Company, and C. A. Breitung, Ada, Oklahoma, state manager, Southwest Gas Utilities Corporation.

While the 1934 convention city is announced by the executive board in the fall of each year, the established practice of this association is to alternate its conventions between Oklahoma City and Tulsa.

Pennsylvania Gas Association

MEMBERS of the Pennsylvania Gas Association are expected to turn out in large numbers for their annual convention, which will take place at Galen Hall, Wernersville, May 9, 10 and 11.

While the program is in a tentative state, leaders in the gas industry from within and without the Keystone State have been invited to speak, Frank W. Lesley, secretary of the association said. He is confident that the final program will prove of more than ordinary interest. A few speakers will be drawn from outside the industry. Among these will be Cameron Black, manager of the personnel department of the New York Stock Exchange.

In addition to an informative business program, the Committee on Arrangements has provided ample time for entertainment and recreation. One of the features of the meeting will be the annual banquet, which will take place Wednesday night, May 10.

New Jersey Gas Association

F. A. Lydecker

THE annual convention of the New Jersey Gas Association was held at the Walt Whitman Hotel, Camden, on March 16. A diversified program held the attention of the 425 persons in attendance throughout the morning and afternoon sessions.

John D. Alden, of Jersey Central Power and Light Company, Asbury Park, president of the association, acted as chairman. He introduced Colonel E. C. Rose, vice-president of Public Service Corporation of New Jersey, who welcomed the delegates to Camden.

A short business meeting followed, during which the following officers and directors were elected for the 1933-1934 association year:

F. A. Lydecker, of Public Service Electric and Gas Company, Newark, president; E. J. Menerey, of Peoples Gas Company, and H. E. Cliff, of Public Service Electric and Gas Company, Newark, first and second vice-presidents respectively; and G. B. Webber, of Public Service Electric and Gas Company, Newark, secretary-treasurer.

The newly elected directors for a term of three years are John A. Clark and H. P. J. Steinmetz, of Public Service Electric and Gas Company, and Chester Grey, of the Atlantic City Gas Company.

The association was fortunate in having as its guest Arthur Hewitt, president of the American Gas Association. Mr. Hewitt, who was introduced by Alexander Forward, managing director of the American Gas Association, gave a clear, calm evaluation of the possibilities of the gas industry. His delightful speaking manner and the warmth of his personality, along with the quality of his ideas, made his intimate address one that will be long remembered. His theme ". . . if we continue to put forth the same intelligent effort that has brought about the astounding development of the industry in the last twenty-five years, why need we fear the future . . . ?" was a powerful antidote for the fear that keen competition in the last few years has generated.

F. E. Sellman, vice-president of Electrolux Refrigerator Sales, Inc., presented the newly developed air cooled Electrolux gas refrigerator. While the new Electrolux has already had limited distribution, Mr. Sellman's address officially introduced the new Electrolux to the gas industry. He gave a description of its operation, and some of its sales possibilities.

Theodore J. Grayson, professor of finance, University of Pennsylvania gave a stirring address on the things to be learned from hard times in the gas business. C. E. Muehlberg, of the Consolidated Gas Company of New York, discussed servicing of customers' appliances. "House Governor Performance" was the subject of a paper presented by A. W. Johnston, Jr. of the Harrisburg, Pa., gas company.

Miss Clara H. Zillessen, of Philadelphia Electric Company, presented the woman's attitude toward gas service, and the importance of providing an agency for answering the many small problems of the householder in connection with using gas service. She pointed out the value of the home service consultant as a connecting link between customer and company.

Conrad N. Lauer, president of the Philadelphia Gas Works Company, gave a clear statement of the objects and aim of the National Directing Committee of Executives of the American Gas Association. His address did much to clarify the understanding of the attitude of gas company executives toward competitive fuels. Mr. Lauer is one of the newcomers to the gas industry and the New Jersey Gas Association was particularly glad to welcome him as a guest speaker.

The all day meeting closed with a house heating sales demonstration by A. B. Becker and V. F. Stanton, both of Public Service Electric and Gas Company, in which the correct sales technique, as well as the comparatively low cost of gas house heating, were effectively presented.

Mid-West Gas Association

ARRANGEMENTS are about complete for the twenty-eighth annual convention of the Mid-West Gas Association which will take place at the Hotel Fort Des Moines, Des Moines, Iowa, April 10-11 and 12.

An outline of the tentative program draws attention to several interesting features. One of the principal addresses will be delivered by Governor Clyde L. Herring of Iowa, who will discuss "The Need of Tax Reduction." Response to this talk will be made by C. A. Leland, Jr., vice-president and general manager of the Des Moines Gas Company.

R. M. Conner, director of the American Gas Association Testing Laboratory, Cleveland, Ohio, also will be among the speakers. He will present a paper on "Gas Mixing."

Others who are expected to speak on topical subjects include: Ira Steele, assistant general manager, Des Moines Gas Company; John M. Drabelle, Iowa Electric Light and Power Co., Cedar Rapids, Iowa; E. J. Boyer, sales manager, Minneapolis Gas Light Company, Minneapolis, Minn.; Edwin A. Jones, L. J. Mueller Furnace Co., Milwaukee, Wis., and C. A. Nash, United Light and Power Engineering & Construction Company, Davenport, Iowa. Mr. Nash will submit a report as advertising representative to the American Gas Association.

Also listed on the tentative program are: Robert J. Canniff, Standard Gas Equipment Corporation, Chicago, Ill.;

A. W. Schmitt, Des Moines Gas Company; P. A. Stover, Central States Electric Company, Cedar Rapids, Iowa; J. T. Schilling, Des Moines Gas Company; Thomas E. Bullion, Detroit-Michigan Stove Company, Detroit, Mich.; Frank Goode, Des Moines Gas Company; Robert H. Luscombe, Des Moines Gas Company and Walter H. Hoagland, Sonner Burner Company, Winfield, Kans.

The sessions will be called to order by W. E. Derwent of Rockford, Ill., president of the association.

Another feature of the convention will be a stag banquet which will take place at the Hotel Fort Des Moines.

Maryland Utilities Association

THE meeting of the Maryland Utilities Association scheduled for April 21, 1933, at the Lord Baltimore Hotel, Baltimore, Md., has been indefinitely postponed according to an announcement made by F. A. Mitchell, president.

Pacific Coast Gas Association

LAST MONTH the Pacific Coast Gas Association held two important conferences, the Technical Section meeting in Los Angeles on March 2 and 3, and the Commercial Section meeting in the same city on March 16 and 17.

The primary purpose of these two conferences was to consolidate and discuss the committee work of the Sections now in progress, and most of the time at both meetings was devoted to extemporaneous discussion of progress reports of committee chairmen.

Guy Corfield, chairman of the Technical Section, announced that with the approval of the Association's Board of Directors he had organized a Publications Committee in the Technical Section whose function would be to study all technical committee reports and papers, none of which will be published by the Association without the recommendation of this committee. It is hoped that the committee will tend to improve the already high quality of the publications of the Pacific Coast Gas Association. Approximately 100 men attended the technical meeting, the program of which was divided into three sections—the first presided over by F. A. Hough, chairman of the Distribution Committee, the second by B. M. Laulhere, chairman of the Natural Gas Committee, and the third by Guy Corfield, general chairman of the Technical Section, in the absence of C. P. Johnson, chairman of the Production Committee.

A similar program arrangement was used by F. U. Naylor, chairman of the Commercial Section, for his two-day conference on March 16 and 17. The entire first day was devoted to a discussion of progress and competition in industrial and commercial sales, under the leadership of K. B. Anderson, chairman of the Industrial Sales Committee. The second day was devoted to a similar discussion of Domestic Sales problems led by H. E. Davidson, chairman of the Domestic Sales Committee.

At a meeting of the Association's Board of Directors held on March 17 it was determined that the Fortieth Annual Convention of the Pacific Coast Gas Association will be held at the Ambassador Hotel, Los Angeles, on September 13, 14 and 15. The Northwest Regional Conference will be held at the Olympic Hotel, Seattle, on June 22 and 23. President H. L. Masser announced that convention arrangements will be in charge of D. L. Scott, Manager of Public Relations of the Los Angeles Gas and Electric Corporation, and arrangements for the Northwest Regional Conference will be in charge of James F. Pollard, general manager of the Seattle Gas Company.

Southern Gas Association

THE Southern Gas Association will celebrate its twenty-fifth anniversary at its Washington meeting, May 2, 3 and 4. There has been arranged a program which promises to be of interest to all in the gas utility business; and the committee handling the program made an effort to take advantage of the present-day problems by securing speakers and papers of such a nature as to be a definite medium for constructive work through a broad, national viewpoint. Sessions will take place at the Shoreham Hotel.

In addition to the following program, there also will be a reunion of all the past presidents, and it is expected that fifteen will be in attendance. A reunion of the charter members, who organized the Southern Gas Association in 1908 in Atlanta, Georgia, also is planned.

Following is an outline of the tentative program:

General Sessions

"Constructive Cooperation within the Gas Industry." Floyd W. Parsons, Secretary and Editorial Writer of the *Gas Age-Record*.

"Development, Research, and Advertising—The Manufacturers' Contributions to the Industry." John A. Fry, Vice-President of the Detroit-Michigan Stove Company, Detroit, Mich.

"Public Utility Contribution to Economic Stability." Alexander Forward, Managing Director of the American Gas Association, New York, N. Y.

"Public Relations." N. H. Gellert, President, National Public Utilities Corporation, Philadelphia, Pa.

Address by John N. Shannahan, President, Midland United Company, Indianapolis, Ind.

Address by government official.

Southern Regional Gas Sales Conference

(Sponsored jointly with the Commercial Section, American Gas Association)

"Meeting Electric Competition in the Home." F. M. Milward Oliver, Philadelphia Gas Works Company, Philadelphia, Pa.

"Today's Water Heating Market and Methods of Capturing It." J. Albin Johnson, Ruud Water Heater Company, Pittsburgh, Pa.

"Air Conditioning Developments." V. S. Day, Carrier-Lyle Corporation, Newark, N. J.

"Some Southern Gas Refrigeration Problems." W. A. Hudson, Birmingham Gas Company, Birmingham, Ala.

"Securing and Holding Central Plant Heating Customers." F. J. Evans, R. J. Evans Engineering Company, Birmingham, Ala.

"Boiler Efficiency and Conversion Factors." J. B. Milmoe, Alabama Natural Gas Corporation, Birmingham, Ala.

"Developing the Sales Department Prospects." Walter Adams, Memphis Power and Light Company, Memphis, Tenn.

"Converting Bakeries to Gas Fuel." A. P. Woody, New Orleans Public Service Inc., New Orleans, La.

Technical Section Meeting

"Mixed Gases." Thomas B. Hopper, Washington Gas Light Company, Washington, D. C.

"Relation of Meter Accuracy to the Net Earnings of a Company." A. M. Spencer, Columbus Gas Company, Columbus, Ga.

"Refractory Screen Oil Gas Process." Alfred Johnson, Combustion Utilities Corporation, New York, N. Y.

Reduced railroad rates will be in effect for those attending this convention, and in addition the opportunity will be afforded all Southern Gas Association delegates to attend some of the sessions of the Chamber of Commerce of the United States of America, which will hold its annual meeting in Washington on the same dates.

An entertainment program has been completed with a view to making the visit of the Southern Gas Association members educational as well as enjoyable.

Pretzel Makers Bake with Gas

With the return of beer the pretzel industry is looking up. The modern way of making pretzels consists of forcing the dough through a die, an automatic knife cutting the extruding strip into the proper length. These drop onto a traveling belt conveyor and operators put the "twist" into them as they pass. At least this is the practice at the Noss Pretzel & Cone Company, Cleveland, Ohio. The endless belt carries them through a gas-fired boiler and salt is sprinkled on them mechanically as they emerge. They then pass through a gas-fired oven 45 ft. long, this passage requiring 11½ minutes, and drop by gravity onto another conveyor which carries them through a toaster also utilizing gas fuel. Two sizes of pretzels are made: the conventional size familiar to everyone and a new small size. The oven temperature is varied from 450° to 475° F., depending on which size is being run, and extremely close control of the oven at either temperature is easily obtained.

ACCOUNTING SECTION

J. M. ROBERTS, Chairman H. W. HARTMAN, Secretary E. B. NUTT, Vice-Chairman

What Is To Be Done About the Troublesome Customer?

By S. H. Corson

(Sponsored by Customers' Relations Committee)

THE job of handling bill complaints is one which requires patience, tact and intelligence even in normal times.

Under present circumstances, when each complaining customer is counting pennies and is far more easily stirred to wrath over what he regards as a high bill, the job of satisfying him is doubly difficult.

With particular emphasis on present day conditions, what is the best way to meet the customer who complains about his utility bill—and to send him away friendly and satisfied? But, what are we going to do about the troublesome customer?

At the outset, it must be admitted that no hard-and-fast course of conduct can be prescribed. Each complaining customer is a case unto himself, calling for special treatment.

The company representative must, among other things, view the problem from the customer's angle. He must acquaint himself with pertinent facts regarding rates, the cost of operating various equipment, the routine habits of the customer so far as use of service is concerned, any reason for abnormal use of service, the accuracy of meters, etc. The customer must be satisfied before any inquiry can be concluded satisfactorily.

One large company has devised a system whereby a card record is kept of the name and address of every customer who registers a service complaint. If more than two complaints are received in close succession, a special investigator calls on the customer to determine the cause of the trouble. The customer is then informed what steps are necessary to eliminate the cause for further complaints of the same kind, with the result that future difficulties are usually avoided.

Any number of ways can be devised for operating a system of this kind at little expense and a minimum of clerical effort. The back of route sheets may be used. A card system may be more satisfactory in some companies. Regardless of the system used, after the second unjustifiable complaint has been closed by a contact representative, that particular account should be "earmarked" so that a special representative will call on the customer if a third complaint is received.

The special representative can accomplish much by learning something of the customer's reputation, standing in the community, etc. This, together with a review of the previous reports and correspondence, will be helpful in deciding on a plan of action which will result in mutual understanding and satisfaction.

I know a customer's representative who always concludes his report "customer satisfied" or "customer apparently satisfied." If this representative is not entirely convinced that everything possible has been done, even to the point of injecting a "new face into the picture," he does not consider the inquiry closed.

There are times when the personality of the company's representative does not appeal to certain customers. Occasionally, the representative to whom I referred receives a negative reaction due to this cause. Then he has a second representative call. This is tactfully arranged simply by telling the customer that the matter will be further investigated. A time is then arranged to suit the customer's convenience for a special representative to call.

There are some individuals, of course, who are positively unreasonable. These individuals not only become dissatisfied with their own bills, but often create agitation among their friends and business associates, resulting in the loss of public good will.

Here is a particular incident, characteristic of many cases with which all companies must contend. It involves an individual—we will call him Mr. Doe—who had apparently made up his mind that he would not be satisfied no matter what the company did. This individual made it his business to complain to other customers, and went so far as to discuss the matter at various business, fraternal, and civic association meetings.

For the past year, Mr. Doe, a baker-confectioner, and president of his neighborhood civic association, had raised some question regarding each monthly bill, as regularly as the bill was rendered. We had written him a number of times, and our representatives had called on him several times, but it was evident that the customer had not been sold on the spirit of our organization.

A few days ago this customer called at the office and insisted on seeing me. I was glad that he did, because he immediately made reference to the "difficulties" which he had had with our company. We looked over the reports. We agreed that they were mutually expensive. He promised to cooperate with me in an endeavor to arrive at a satisfactory conclusion. I invited him to suggest some question for discussion. His question concerned rates. Reference to the papers indicated that this subject had been previously fully covered by letters and personal calls. However, I went over the whole subject again, after which the customer said that he thoroughly understood the matter.

He then asked other questions, which indicated to me that he was of the type who complained for no real reason. He agreed with me regarding the possibility of one's opinion being biased through his listening to a so-called reformer, or possibly by his having read some "colored literature." A short time ago there was some agitation about egg powder and adulterated ingredients being used in the manufacture of ice cream and cake. Some publications inferred that most manufacturers were involved. Mention of this matter brought forth a storm of righteous indignation. The baker-confectioner-customer told me that he had received a great many unjustifiable complaints because of this unfounded charge, and that he had lost some business which he could not regain. I sympathized with him. We agreed that the influence of such reports was bad. From that point on, the conversation was diverted to topics of the day. My sympathizing with "Mr. Doe" in his business problems had resulted in his becoming a friend of our company instead of a dissatisfied customer. As a matter of fact, he concluded our visit by telling me that in the future he would do all in his power to help our company maintain good public relations.

Of course, all customers are not baker-confectioners. Whatever their business or profession, however, some common ground for mutual understanding can be found. We can always sympathize with a customer about his troubles, and compliment him in such a way as will appeal to his pride. We can ask questions to which the answers cannot be anything but "yes," a genuinely sincere "yes."

There is no doubt but that every company has a certain number of "unsold" Messrs. Doe to handle, and that these disgruntled customers are doing much to defeat good public relations in their communities. Most companies recognize this situation and are taking definite steps to correct it.

Importance of Following Up Missed Meter Readings at This Time

By J. G. Waddick

The Peoples Gas Light and Coke Company

IT is agreed by most every one that these are unusual times. Because of this it is essential that more effort than ever before be made to obtain the readings of gas meters not read on the regular calls.

There are many reasons for doing this, both from the customers' and the company's viewpoints. Few customers care to receive a bill for more than one month, as most household budgets are arranged to take care of only one month's bill at a time. If no bill is received, the money set aside for it may be put to some other use, with the result that when a two or three months' bill is received the customer is not prepared to take care of it. This frequently is the first cause for the credit record of the customer becoming impaired.

So much for the customer. Now the reasons from the company viewpoint assert themselves. The customer cannot be billed unless his meter has been read. Naturally, it is to the best interest of the company, from a revenue standpoint, to read all meters each month. Also in many cases irregularities are found in the gas service connections when meters have not been read regularly.

Among these irregularities are false connections, tampering with the meter, and using gas in such volume as to cause the meter dials to make a complete revolution.

Another reason, from the viewpoint of the company, for reading meters that were missed on the regular calls is to minimize high bill complaints. In many cases the customer forgets the excess use made of gas in the first part of the period if the bill covers two months or more.

The follow-up procedure on missed meter readings doubtless will be varied in the many companies throughout the country. The practice which has proved most effective in one company is as follows: When the meter readings have been missed on each of the regular two calls made each month, special tickets are prepared. These tickets are given to a selected group of meter readers. Calls are made on Saturday afternoons, Sundays, or in the evenings. If the meter reader again fails to obtain the reading a postal card addressed to the company is left on the premises. Directions on the card instruct the customer to read the meter, enter the meter reading on the card, and then mail it to the company. Since business reply cards are used, the company pays the postage.

When all the foregoing efforts have failed, a polite letter is sent to the customer requesting his cooperation in arranging for the reading of the meter.

If at the end of thirty days no response is received from this letter, another letter is sent. This second letter is firm and informs the customer that unless arrangements to read the meter are made by the customer, the gas service will be discontinued at the service pipe. Inasmuch as this procedure is expensive to the customer, there are few occasions when the company has to resort to it.

Because of its obvious importance, from the point of view of both the customer and the company, every possible effort should be made to read the gas meters missed on the regular calls. The company will be rewarded in dollars and cents and in that important asset—good customer relations.

To Prepare Paper on Natural Gas

A MEETING of the Southwestern Subcommittee of the General Accounting Committee was held at the Muehlebach Hotel, Kansas City, Missouri, February 13.

Members present were M. F. Reeder, chairman, General Accounting Committee, L. L. Dyer, chairman, Southwestern Subcommittee, J. R. Abercrombie and S. B. Redmond.

Before going into the work of the Southwestern Subcommittee, Mr. Reeder made a brief talk, outlining the activity of the committee, the reason for the subcommittee and the aim of the general committee, as well as the subcommittees.

It being the desire of the General Accounting Committee that a subject be presented which would be of interest to the natural gas industry, the Southwestern Subcommittee was assigned the duty of preparing a paper to be presented at the annual convention in September, the subject of which was left to the committee.

After due consideration and discussion, plans were adopted to assemble the necessary data and prepare a paper on a subject pertaining to the natural gas industry.

Studying Bill Complaints

A MEETING of the Accounting Section Subcommittee on Improving Customer Relations through Bill Investigations was held at the Consolidated Gas Company Building, New York, February 24, with the following members present:

F. L. Hallock, chairman, Consolidated Gas Co. of New York, New York, N. Y.; S. H. Corson, Philadelphia Electric Co., Jenkintown, Pa.; Geo. Jenny, Jersey Central Power & Light Co., Asbury Park, N. J.; H. H. Jesper, The Brooklyn Union Gas Co., Brooklyn, N. Y.; J. J. Kelsh, Westchester Lighting Co., White Plains, N. Y.; G. S. Lees, New Haven Gas Light Co., New Haven, Conn.; W. G. Murfit, Philadelphia Gas Works Co., Philadelphia, Pa.; Louis Stoecker, Public Service Electric & Gas Co., Newark, N. J.; F. E. Vilas, Consolidated Gas Co. of New York, New York, N. Y.; H. A. Ehrmann, chairman, Customers' Relations Committee, Midland United Co., Chicago, Ill.

By invitation: J. P. Rooney, Consolidated Gas Co. of New York, New York, N. Y.; H. W. Hartman, secretary, Accounting Section, A. G. A. Headquarters, New York, N. Y.

The principal matter discussed by the committee was a question study on the subject of organization and methods of handling bill complaints, particularly from the standpoint of the effect of such procedures on the customer's attitude toward the company. As a result of this discussion it was decided to seek a little more definite information, particularly on the fundamental principles involved in organization and methods. The information so far obtained from the committee proved to be very interesting, and it was indicated that an outstanding report could be anticipated for the Convention.

An attempt will be made to bring out a typical organization structure sufficiently broad to be useable as a guide for all companies and all conditions.

Mr. Murfit presented an interesting set of forms in connection with the handling of bill complaints in the Philadelphia Gas Works Company, particularly applying to house heating customers.

A Consumer's Plea

Ah! how I loved that bank of mine,
And boosted it each day!
And how I bought its lovely stock,
And started in to pay!
And how I pinched each little coin,
And did my best to save,
And buried it in their strong vaults,—
(A good substantial grave!)
And I drew checks to pay my bills,
Of coin there was no lack,—
And then the checks came bouncing back,
And back, and back and back!
And so the wheel of life turns on,
And so we live and learn,
And if we have a little luck,
A little still we earn.
And now your "Reader's" at my door,
Adding more cubic feet,
To what already I.O.U.
To make a total sweet.
Real money's coming in the first,
(At least the bosses say)
And so if you'll just "lump" the lot,
I'll do my best to pay.

And kindly have a heart, kind sirs,
And count that discount paid,
Because the dough was surely there,
The day the check was made!

Dedicated to THE EAST OHIO GAS CO., *Cleveland, by "Special Permission of the Copyright Owner."*

COMMERCIAL SECTION

WALTER C. BECKJORD, Chairman J. W. WEST, Jr., Secretary N. T. SELLMAN, Vice-Chairman

Continuation of Record of Performance of Sectional House Heating

By E. C. Adams

Chairman, Space Heater Division, A.G.A.

IN the 1932 House Heating and Cooling Report there was contained a detailed record of performance of automatic sectional house heating at the residence of A. Steffen, 1415 Columbus Avenue, Pittsburgh, Pa. This record included charts giving continuous recorded inside and outside temperature conditions, floor plans, gas consumption, and other pertinent data over a wide range of weather conditions.

The 1932 record of gas bills is now available and shows a total close to the 1931 total. Some interesting comparative data on coal heating are also available now. Nos. 1415 and 1417 Columbus Avenue are identical properties in the form of a double house, with the exception that No. 1415 has a two-car garage heated with gas. No. 1417 has no garage.

No. 1415 has automatic gas heat night and day at the same temperature.

No. 1417 has a modern coal-fired warm air furnace installed in 1930 to replace an obsolete design of coal furnace. It has a gas range, gas water heater, and three small unvented gas heaters for occasional use. The average coal consumption with a modern warm air furnace during 1931 and 1932 at No. 1417 was seven tons per year.

The experience with automatic sectional house heating with gas at No. 1415 has been satisfactory. The following tabulation of gas bills over a two-year period at these two similar homes is convincing evidence of the low cost of this gas heating service. With coal selling at normal prices this service can be rendered at practically the same fuel cost. It is truly competitive with coal and far more satisfactory heating conditions are obtained.

	A. Stephen No. 1415		*No. 1417*	
	1931	*1932*	*1931*	*1932*
January	$ 7.20	$13.20	$ 3.60	$ 2.40
February	6.00	9.00	1.80	1.80
March	13.20	11.40	2.40	3.00
April	10.80	8.40	2.40	2.40
May	3.60	4.20	1.80	1.20
June	1.14	1.20	2.40	1.80
July	1.00	1.00	1.20	1.20
August	1.00	1.00	1.00	1.00
September	1.00	1.00	1.20	1.00
October	1.00	1.00	1.20	1.20
November	5.40	3.76	1.80	1.20
December	10.20	7.20	2.40	1.80
	$61.54	$62.36	$23.20	$20.00

AUTOMATIC GAS HEAT

COAL HEAT

Double house at Pittsburgh

The tabulation also shows that the sales effort necessary to sell this form of gas heating is worth while in the production of revenue. In this particular case, it increased the revenue from this customer about 200 per cent at no increase in fixed expense. It also produced an enthusiastic user of gas heating service that is practically impregnable to the attacks of competitive fuels.

Over a period of ten years this particular sale of gas heating should produce additional revenue of about $425. Organization of sales effort on sectional house heating to gain the market for gas heating in modest homes now utilizing competitive fuels for heating is one phase of gas service not yet developed, and one that promises highly productive results.

Laclede Promotes a Veteran Employee

George D. Dodd

GEORGE D. DODD, formerly superintendent of the street department, The Laclede Gas Light Company, St. Louis, Mo., has been appointed superintendent of distribution to succeed the late Eugene P. Lynch.

Mr. Dodd started work with The Laclede Gas Light Company thirty-seven years ago as a meter reader, later serving in the consumers' accounting and distribution department offices, district fitting shops and street and paving departments.

The Dodds are almost traditional with The Laclede Gas Light Company, the father of the new superintendent of distribution having served thirty-seven years with the company as an engineer, following service as an apprentice engineer on a Mississippi river steamboat. He stepped from the gang plank of one of the historic old steamboats to the engine house of the old Station B plant at Mound and Mullanphy Streets on the banks of the river. A brother, William S. Dodd, former treasurer of the company, who retired a year ago, was with the company continuously for fifty years.

Manufacturers and Dealers Aid Easton Gas Show

WITH the cooperation of manufacturers and dealers, a program of activity, which will continue for six or eight months, the gas divisions of Metropolitan Edison Company and New Jersey Power and Light Company, last fall participated in a gas show at Easton, Pa. Objectives of the show were as follows:

To arouse a consciousness of gas in the minds of the public and employees, and have them realize that it is the ideal fuel, obtainable at low cost.

Miniature gas plant at Easton Gas Show

To launch a six to eight months' campaign for promotion of the gas industry.

To obtain immediate leads for sales.

To give manufacturers and dealers evidence of the gas utility's intention to cooperate with them in the sale of gas appliances.

To encourage dealers to cooperate with gas companies in promoting the use of gas appliances.

To build good will for the gas industry in Easton and Phillipsburg.

The need for a gas promotional activity in this territory was shown by diminishing revenues and the fact that the average annual revenue per customer is about $32 as compared to the national average of $34.

Surveys of the territory revealed that the public has an erroneous impression about the cost of gas for water heating; that it is not sold on gas as the ideal fuel, and that it is not familiar with all the advantages which gas service may provide for the home maker.

The show took place in the Penn Auditorium, Easton, and the displays were on view from Saturday to Saturday, that day being selected for the opening and closing dates, because of greater numbers of people in the shopping districts.

The public was informed of the show through newspaper advertising, truck bulletins, street banners, illuminated signs, window displays, news items, civic club announcements, and the advance distribution of tickets through meter readers and employees, and also through dealer stores and company offices.

While all exhibits attracted the visitors, one of the features of the show was a special demonstration in the use of gas appliances, which was conducted by Miss Ruth V. Carlington, home service director. Interest also was stimulated by the daily award of prizes.

All visitors were attracted by a model gas plant, picture of which is shown herewith, which was provided the Easton show through the American Gas Association. It showed the actual operation of a water gas plant.

Because of the widespread local publicity, nearly 5,000 people attended this show, and apart from the informative exhibits by manufacturers of gas appliances and others, they were entertained with music and other amusements.

Visitors view demonstration at Easton Gas Show

New Book on Government

ERNEST GREENWOOD, author of "Alladin, U. S. A." and "Amber to Amperes" has turned out a new volume entitled "The Great Delusion," in which he makes an analysis of governmental activity in private industry, with particular emphasis on public utility and water power regulation.

The book covers the Muscle Shoals, Boulder Dam and the St. Lawrence Waterway projects, the competiton of state insurance funds with private casualty companies, etc.; and is a warning and a plea against a needless extension of governmental control or operation.

HOME SERVICE COMMITTEE

RUTH KLEINMAIER, Chairman JESSIE McQUEEN, Secretary

Is Home Service the Dorothy Dix of the Gas Industry?*

Clara H. Zillessen

By Clara H. Zillessen

Advertising Manager, Philadelphia Electric Company

IT may seem a trifle facetious seriously to compare home service with Dorothy Dix's service. But there is no question that home service is the Dorothy Dix of the gas industry, because all the heart-rending questions of why cakes fall and biscuits don't rise, why gas refrigerators aren't just nice big ice cream freezers, why ironers don't iron ruffles and what makes water heating bills so high, are constantly flowing in on home service departments to be fully and intelligently answered.

Time was when those of us not immediately connected with home service looked indulgently at its pleasant gatherings of women who came to the meetings to get recipes for angel cake, and sample ice cream made in the refrigerator. We felt that it was all a nice, broadminded gesture on the part of the central station to be so altruistic as to contact its women customers in such a general way . . . and that in some vague way it would better public relations and perhaps ultimately sell a few appliances. Much water has gone over the dam since then and most of us have found home service a definite commercial as well as a public relations asset.

I have always thought that there are just three things to do about increasing domestic gas consumption, or building residence load, and they are very simple. The first is to sell gas-consuming appliances. The second is to keep the appliances already sold in use. And the third is to sow the seed for future sales. It sounds like an open-and-shut proposition, but it isn't as easy as it sounds. Ordinary advertising and merchandising methods are not sufficient, because you have here much more than a day-by-day or over-the-counter selling job.

And here is where home service fits in. Home service takes hold before advertising and merchandising start—and it continues functioning after they stop. Home service tills the field for appliance sales because it reaches the older women who don't read advertising, the younger women who don't believe all they read and all the women who don't like salesmen ringing their front doorbells. Home service is the personal face-to-face contact, where advertising at best is more or less impersonal. Home service is a service—it goes the salesman one better because it is not primarily interested in individual sales, and so increases customer confidence. And so home service is the Dorothy Dix of the public utility business, because all the annoying questions of why roast beef is too well-done and roast lamb too rare, why refrigerators don't make one hundred ice cubes an hour, why coffee doesn't taste right, and all the hundred-and-one minor tragedies that occur in every household every day are laid in its lap.

I know all these things sound very trivial to you executives who think in terms of carloads of ranges and refrigerators; but the sum of these trivialities, year-in-and-year-out throughout the territories you serve, unattended to and lost in the shuffle, is just that much load lost, and just so many appliance sales lost. Sometimes it seems to me that we in this gas and electric business have thought too much about the production of gas and too little of the consumption. Shouldn't we investigate and pay a little more attention to the customer and what she wants in the way of gas appliances and service from her gas consumption?

You can take it from me that all the swell advertising in the world and all the careful training of salesmen never even touches that inarticulate dissatisfaction with an appliance which a lot of women experience all the time—not through any fault of the appliance itself as a rule, but through their own ignorance, haste, inexperience or bad judgment. But, if the woman with a gas appliance which is not doing its best for her, knows that her gas company has a Dorothy Dix department where she can take her troubles, then you can be pretty sure she is going to be satisfied. Her husband goes out the next day and tells his co-workers that a woman from the gas company came and showed his wife how to use their new automatic gas range and cooked a fine dinner on it—and his wife's relatives, friends, neighbors and club associates hear all about it, too.

One month we kept a partial account of the telephone, mail and personal requests which our home service people answered. This includes questions on both gas and electric appliances, but I will present them to give you a picture of just how important this phase of home service is:

Eight questions on why waffles stuck to the waffle irons; 1 on how to roast beef; 2 recipes for cake, 2 for salad, 1 how to bake beans; 26 on how to roast turkey (this was just before Thanksgiving); 3 on what kind of mixer to buy. (After Christmas we had 32 inquiries on how to use the mixer); 8 on what make of range to purchase; 14 on how to singe fowl on an electric range; 3 on how to make angel cake and 6 on how to freeze desserts; 52 requests for special menus for parties; 13 special diet menus; 4 on what makes coffee taste queer in percolators, and 128 mail requests for the menu and recipe sheets of our cooking lectures.

Our business isn't the only one which uses home service to good advantage. Home service, after all, is nothing more nor less than helping the customer take advantage of the service given by what we sell. The Pullman Company is showing what different kinds of equipment you can buy for your money—the department stores will cut a dress for me if I buy the dress goods from them—the paint companies will give me charts showing the best colors to paint my furniture—the silver people will show me how to set my table—the General Electric Company even uses the radio to have Emily Post tell me how to mind the P's and Q's of etiquette as it is done or not done today or to have Madam Sylvia tell me how to eat all the desserts I want and still not worry about my weight—the makers of dog medicine tell me how to keep my dog well—the food people tell me how to save money and still eat well—one cake flour company will even tell me 114 ways to a man's heart!

The commercial executive, however, must see an ultimate return on his investment in home service. He remembers that while home service must be commercially minded in the long run and must do a promotional job at all times, and proceed parallel with the commercial policy of the company, it is not interested in individual sales. That is, I believe, where the question of how much commercialization a home service department can stand, becomes controversial. One school of thought looks with horror on the idea of any commercial association for home service. Another school of thought feels that home service should be made to

* Address before the annual convention of the New Jersey Gas Association, Camden, N. J., Mar. 16, 1933.

produce actual sales, and to use that as a yardstick of its value. The logical middle course would dictate that home service is largely commercial in that it is really selling the proper use of gas and electric service, so that in the long run it is also bound to be responsible for sales of appliances giving these services.

No commercial executive can judge the actual results of a home service department by the number of sales of appliances it makes within a year or any other given period, for individual sales are just a by-product of home service. You cannot judge home service on the same basis as mail order advertising—definite returns from definite advertisements. Over the course of one year, or two or five, you will find that an intelligently-conducted home service will increase appliance sales by reaching the public through graphic demonstrations and by selling the best possible service from the various appliances, thus making it easy for the salesmen and the direct advertising to function. It will keep appliances working, because as soon as anything is wrong with her gas equipment, the average housewife will immediately call upon home service to find out about it. And it also insures that very desirable thing—sowing the seed of future use of gas service to an extent not possible immediately.

I believe we will all agree on this one point: we do not keep in close enough touch with our customers. It is too easy to take them for granted, knowing that they will use our product until death do us part or they move away. And because most of these customers are women, the problem is still more complicated, because women have penchant for asking what seem like silly questions. They want to know how many sheets a washer will handle at once rather than if it has steel-cut gears or bronze agitators. They want to know how long the baby's milk will keep in the refrigerator rather than what the freezing agent is. Ask any Fuller brush man about the questions women ask when they are about to buy anything for the house! I know that every once in a while one of them lands in my house and he takes about three of my perfectly good dollars because he senses that I would rather know how much a complexion brush will do for my looks than to be told that the bristles came from a Chinese boar!

We have done a good selling job in this industry of ours, but there is still much to be done in increasing gas consumption, selling more gas appliances and tilling the soil for future business. Home service is one of the things that will help!

Gas Cuts Cost of Making Beer Barrels

WITH the removal of the legal fetters on beer accomplished, the brewing industry requires barrels. In a typical cooperage plant barrels are made from such woods as oak, fir, ash or gum. The stock ranges in thickness from ⅝ to 1 inch and in lengths dependent upon the capacity of the barrels. Stock as received from the kilns contains a maximum of 8 per cent natural moisture. It is shaped into staves on a rotary joiner, and barrel "raisers" set the shaped staves and apply a hoop at one end.

After raising, the partially completed barrel passes through a steam tunnel, which renders the staves sufficiently pliable to permit shaping the free ends with the aid of a chain windlass or similar device. A second hoop holds the barrel in its proper shape, and the firing operation which follows relieves the strains set up in bending.

Gas-fired process steam boilers supplying steam for the tunnel operation have been found ideal for this purpose. A clean and inexpensive method of steam production with a minimum outlay for equipment is thus made available for all production schedules.

It is in the firing operation that gas is playing an even more important part in reducing costs and improving the quality of the finished barrel. Gas-fueled firing pots are built up from floor level as a rule, with plastic fire brick. The pots are then equipped with a double-burner set to direct the flame tangentially to the outside wall of the pot.

England Introduces Infra-Red Rays of Gas Flame to Fight Disease

(Continued from page 141)

the body under treatment, and it is desirable, therefore, to expose patients to as high a concentration of energy as they can stand without undue discomfort. Treatment can readily be effected for an hour, or longer, if necessary. The patient can be irradiated in a sitting or reclining position, and, generally, it is found desirable to repeat the treatment two or three times a week, or even daily.

Commenting on the apparatus, Sir Leonard Hill, M.B., LL.D., F.R.S., supervisor of the London Light and Electrical Clinic, said:

"This lamp is durable and cheap. It will run for five hours at a cost of one penny, and it affords an efficient source of red and short infra-red rays, as well as dark heat. . . . By means of these lamps several cases of chronic rheumatism have been treated with resulting alleviation of pain and improvement of stiff and swelling joints; in one case a severe eruption of acne was removed. A ward is now installed with the lamps at the London Light and Electrical Clinic.

The Croydon "Home Health Week" was supported by advertisements which appeared in the local newspapers, explaining how exposures of twenty to sixty minutes each day should be sufficient to give relief from pain and discomfort.

It is believed that there will be a very useful future in these clinical gas lamps, and, in drawing attention to gas as a definite source of health by means of its display, the Croydon Company is regarded as having done a public service in its district and to have put forward a valuable suggestion to the gas industry as a whole.

30,000 Refrigerators!

(Continued from page 140)

industrial load distributed among a comparatively few large consumers is. Neither is it subject to the shrinkage that would affect a similar industrial load during depression times.

Today, a great deal of merchandising effort is put on the sale of appliances which are not new sales but replacements of existing gas burning appliances. This effort is essential so that the consumer may have modern equipment, and that we may meet competition from other sources. This effort does not add materially to our gas load. However, when a gas company sells a gas refrigerator, it is not a replacement and added load results.

Our company plans to expand its refrigeration load as rapidly as possible through the added sale of gas refrigerators. We believe that there exists a large potential growth in this field; not only in the replacement of the old ice boxes but also in the replacement of many of the cheaper types of electric refrigerators. With the introduction of the air-cooled model, it is anticipated that the service cost per month will be cut in half.

Sales resistance will be reduced to a minimum due to the elimination of water troubles, which up to the present have proven the chief obstacle, particularly in "hard water" districts. With the elimination of the cost of water for operation, which varies from $2.50 to $6.00 per year for different territories, together with the reduced cost of installation resulting from the elimination of water connections, the potential possibilities in the refrigeration field have been considerably broadened.

INDUSTRIAL GAS SECTION

E. L. WILDER, Chairman C. W. BERGHORN, Secretary F. B. JONES, Vice-Chairman

Application of Gas Fuel to Coal-Fired Boilers

By H. F. Rehfeldt*

ABOUT four years ago, The Peoples Gas Light and Coke Company, Chicago, Ill., introduced a new gas rate which was projected for the purpose of obtaining a substantial block of business during its off-peak period. Since originally introduced, this rate has been reduced several times to a point where the average price is now about three cents per therm. Together with this, the period of application has been extended from five to seven months and the rate is now available from April 1 to October 31. When originally introduced, the gas purchased under this rate could only be used for "water heating," but now the rate is applicable to the generation of steam without respect to its ultimate use. It is, therefore, now possible to take over loads using steam for space heating, power generation, process work, or water heating on this rate. Since the potential market for this class of business is in buildings or plants where suitable steam generating equipment is practically always already installed, it becomes necessary to give serious consideration to the conversion of the existing boilers to gas fuel. It is the writer's desire to discuss some of his experiences in the application of gas burners to coal-fired boilers during a campaign for the sale of off-peak gas.

Numerous problems present themselves to any new undertaking, and applying gas to coal-fired boilers is no exception. If these problems are given careful consideration beforehand, the possibility of a faulty installation will be reduced to a minimum. The items of major importance to be considered are discussed in the following pages.

Type of Burner

The type of burner to be used in converting coal-fired boilers to gas depends a great deal on the local conditions, but, in general, it can be said that where gas at a pressure of 8 ounces or over is available, a selection must be made between the natural draft type of burner, employing a gas booster to get the required pressure, and some type of blast burner. In addition, some consideration must be given to the so-called blue flame atmospheric type of burner when encountering the conversion of small boilers.

The choice between a natural draft and blast burner is governed by a number of items, such as initial cost, flexibility, ease of application, and adaptability to automatic control. The earlier installations in Chicago were all of the blast type employing air at about 4 ounces pressure. The conversion to gas firing was simplified in these cases, due to the fact that a permanent installation could be made and the yearly change back to coal firing was not necessary. In one of these cases, a 100 horsepower horizontally baffled water tube boiler, equipped with a "Dutch" oven, was converted to gas fuel by locating the burners in the side wall of the boiler setting, just beyond the "Dutch" oven. A 9-inch fire brick wall was thrown up between the boiler setting and the combustion chamber, and it was merely required to knock down this wall and place a few bricks in front of the burner faces when it became necessary to return to coal firing during the peak period. Under certain conditions, one has no alternative but to use blast burner equipment. This is the case when the combustion space is relatively small.

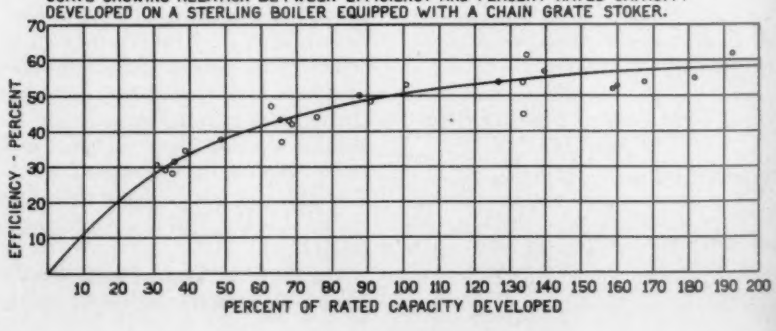
Natural draft type burners can be successfully employed on pressures as low as 2 ounces, but they have no turn-down qualities beyond this point. When natural draft burners are used in cases where the maximum gas pressure at the burner is only 2 ounces, they cannot be throttled and must be operated either completely on or off. The on and off method of control seems to work out well on small boilers, but where large volumes of gas are involved, it has its objections due to the possibilities of serious puffing. To overcome the objections of on and off operation, it becomes necessary to provide enough gas pressure so that some degree of throttling can be obtained. This has been accomplished on the Chicago installations with fan type gas boosters capable of producing a pressure of at least 8 ounces at the burner. Boosters of this type are practically free from mechanical trouble and maintenance, and the operating cost is comparatively small. Of course, a throttling turn-down of only 2-to-1 can be obtained with a maximum pressure of 8 ounces, and any further turn-down must be obtained by cutting out one or more burners. Greater throttling could be obtained by going to higher pressures, but this brings us into a class of boosters which require a certain amount of attention, run comparatively high in initial investment, and the power cost becomes quite an item.

Combustion Volume

An important factor which must be given careful consideration in converting coal-fired boilers to gas, is the amount of combustion space available per developed horsepower at the maximum firing rate. The minimum allowable combustion chamber volume per horsepower at the maximum firing rate is a factor which is controlled by the type of boiler being fired and the kind of combustion equipment employed. High furnace temperatures and pulsation troubles are liable to occur when the combustion volume is restricted below a definite point which has been established by practice.

When using natural draft type burners with 800 B.t.u. mixed natural and coke oven gas at a pressure of 8 ounces, we attempt to get about 1.5 cubic feet of combustion space per boiler horsepower developed at the maximum firing rate. With higher gas pressures, say 2 pounds per square inch or over, this figure can be safely reduced to 1 cubic foot. If blast burner equipment is used, this figure can be still further reduced

CURVE SHOWING RELATION BETWEEN EFFICIENCY AND PERCENT RATED CAPACITY DEVELOPED ON A STERLING BOILER EQUIPPED WITH A CHAIN GRATE STOKER.



* Sales Development Engineer, Industrial Department, The Peoples Gas Light and Coke Co., Chicago, Ill., and member Large Volume Water Heating Committee, Industrial Gas Section, A. G. A.

to about 0.5 cubic foot without encountering any difficulty.

Burner Application

An obstacle encountered in the sale of off-peak gas for steam generation is the one which requires that the boiler be in service during the peak period and must be then fired with coal. This will require a certain amount of labor and material at the end and beginning of each off-peak season. This difficulty can be very often minimized by so placing the burners as to make the expense of change-over negligible. How this was accomplished on a 100 horsepower water tube boiler, provided with a "Dutch" oven, has already been described. The same method was supplied to a 150 horsepower horizontal return tubular boiler, but fired with a natural draft burner. In another case, a 307 horsepower horizontally baffled water tube boiler, equipped with a chain grate stoker, was converted to gas fuel by introducing the burners into the rear of the setting and building up the bridge wall until it met the first row of tubes. To return to coal firing, it was merely necessary to remove this additional bridge wall and protect the burner faces with a course of fire brick. One is, however, not always confronted with this problem of continually changing from one fuel to another, for quite often it is found that a plant will have what is known as a summer boiler and a permanent installation of the gas burning equipment can be made on this unit.

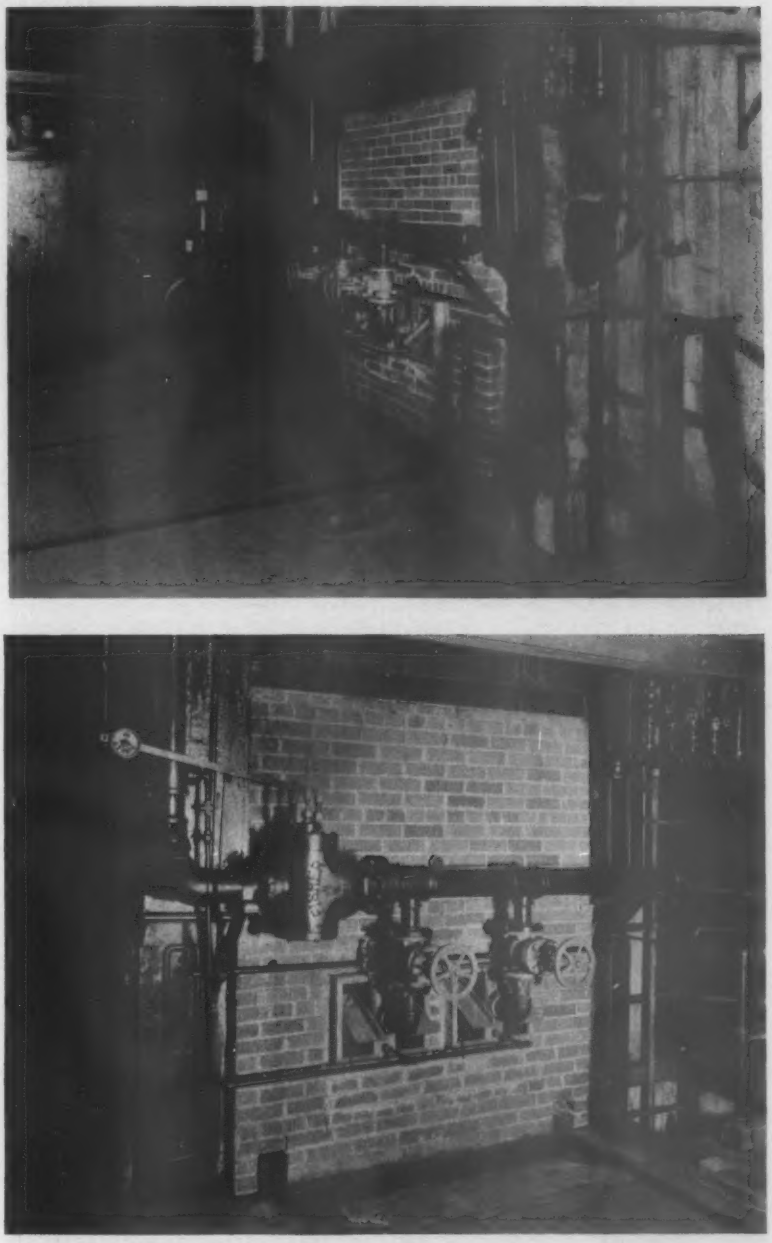
In applying gas burners to hand-fired boilers, it is usually advisable to remove the grates so that the benefit of the additional combustion chamber space provided by the ash pit may be realized.

If a boiler is equipped with a chain grate stoker, and no other firing position can be obtained, it is usually advisable to remove the stoker, suitably pave the floor with insulating and fire brick, brick up the front of the combustion chamber, and place the burners in the front wall just a few inches above the new firebox floor level. This is only possible, however, due to the expense of removing and replacing the stoker each year, when a permanent installation can be made. The burners may be placed above the grate if the necessary combustion space can be thus obtained after the grate has been covered with at least 5 inches of insulating and 5 inches of fire brick.

Controls

One of the reasons that gas at 3 cents per therm can compete with coal at $4 or $5 per ton is due to the fact that its combustion can be readily controlled. This is certainly not the case when coal is used, especially when the boilers are operated at low ratings. It is, therefore, essential that full advantage be taken of this condition and that suitable control equipment be installed in connection with the gas burners so as to insure a high combustion efficiency throughout the entire operating range.

When the complete on and off method of operation is employed in conjunction with blast equipment, the control problem is a fairly simple one, as it is merely necessary to stop and start the air blower at some predetermined steam pressure and then control the flow of gas by means of a diaphragm valve which is actuated by the blower air pressure. The control of the damper need not be considered, as the firebox draft can be adjusted to about .02 of an inch, and under such a condition, heat loss due to the air infiltration during the off period is negligible. If, however, this method of control is applied to natural draft burners, without controlling the damper, an entirely different condition is produced. The boiler setting will be under a comparatively high draft during the off period, and even though burner louver control is employed, enough air will be induced through cracks, etc., to materially affect the overall efficiency. We are, therefore, led to the conclusion that when using natural draft burners, it is important that some form of draft control be employed. This is true with the throttling as well as with the on and off method of operation.



Two views of 250-H.P. Water Tube Boiler converted from coal to gas firing by removing chain grate stoker and placing burners as low as practical

Two of four 350-H.P. Scotch Marine Boilers converted from coal to gas firing by removing grates from Hawley Down Draft Furnace and placing burners in the ash pit door location

Draft control is being successfully applied to coal-fired installations, and on the newer medium sized plants, standard equipment designed to accomplish this will be found already installed. This same equipment can be used when changing to gas firing by merely interconnecting the gas valve with the damper operating mechanism with the aid of suitable lever arms and a cable. Then with the damper movement and gas valve opening properly synchronized, satisfactory combustion can be maintained throughout the entire operating range. Controls of this type are actuated by steam pressure, so that with a drop in pressure, the damper and gas valve will open simultaneously until equilibrium is again established. The chief objection to this type of control is that it does not compensate for a change in stack draft and should therefore only be used in cases where this condition is fairly uniform.

A type of control has now been developed in which the flow of gas is governed entirely by furnace draft and overcomes the objection just mentioned. The damper is operated independently of the gas valve and is caused to close and open with a rise and fall in steam pressure. As the damper is caused to move to a new position, a change in draft is immediately encountered in the firebox, which, through suitable mechanism, resets the gas valve for the new draft. It can be seen that a control of this type is entirely independent of the stack draft. Let us assume a condition when the boiler is up to pressure and the damper and gas valve are in equilibrium. Now if the stack draft is increased, due to some external influence, the furnace draft, and, of necessity, the gas flow, will be augmented in proportion. But this increase in gas flow will immediately tend to raise the boiler pressure, which, in turn, will act to close the damper until the original furnace draft and gas flow conditions are re-established.

Estimating Gas Consumption

Because of the nature of the load which is carried on an off-peak boiler, the forecasting of the gas consumption cannot be reliably based on a fixed unit, such as floor space, occupancy, etc. The load is liable to vary from straight water heating to a combination of one or more loads, including space heating, process heating, refrigeration, and power generation. Under such conditions, without knowing the many factors controlling the amount of steam used by each class of steam consumer, the estimating of fuel consumption seems a hopeless task. In Chicago, we have found no better estimating method than to use the amount of crude fuel consumed as a basis for our calculations.

After obtaining the seasonal crude fuel consumption from plant records, it is next necessary to establish the average operating efficiency during this period. As the efficiency of a coal-fired boiler depends largely on the rating at which it is operated, some idea as to the average load carried must be obtained. It will be found that, in general, the average rating at which boilers used during the off-peak season are operated, is far below 100 per cent, and it is below this point that the operating efficiency drops off rapidly when firing with coal.

Until recently, we have had but little information on the overall efficiency of coal-fired boilers when operated at low ratings, and relied solely on information obtained from a few spot tests. Just lately, however, we were fortunate in obtaining some data on a well operated plant located in one of Chicago's Loop buildings. These data have been plotted on the accompanying curve and show clearly the relation between efficiency and per cent of rating developed. The data were collected over a period of two months, during which time either one 350 or one 389 horsepower Sterling boiler, each equipped with a chain grate stoker, was operated. The boiler was on load about ten hours a day, being practically banked the remainder of the time. Daily records were kept of the weight of coal as fired and the amount of steam produced, the latter information being obtained from the plant steam flow meter.

The question which naturally arises at this time, is, now that the operating efficiency on coal has been established, what can be expected from this same boiler under similar load conditions when fired with gas. We have conducted evaporation tests on several boilers, which we have converted from coal to gas, and have found that even though the per cent of rating developed was low, we could still maintain an efficiency of well over 70 per cent. The table on the next page gives in condensed form some of the actual results obtained.

With results of this kind to support us, we feel quite safe in using an efficiency of 70 per cent for the gas-fired installation when estimating the gas consumption. Thus with the heating value of the coal and the seasonal consumption at hand, together with the established efficiencies, we can now calculate with a reasonable degree of accuracy the seasonal gas consumption.

The success or failure of a conversion installation depends largely on the amount of engineering put into the job before any equipment is ordered. Load conditions must be studied to obtain the maximum and minimum steam demand, so that a burner or burners can be selected which will have sufficient flexibility to meet these conditions. As previously mentioned, careful consideration must be given to combustion chamber volumes and location of burners, and we must by no means make a haphazard selection of control equipment, as this is really the heart of a successful conversion. Then too, piping sizes must be carefully planned, so that ample burner pressure can be always maintained. When a booster is employed, pressure drops must be calculated in order that the booster outlet pressure can be determined and a unit selected which will meet this requirement. It is improbable that two boiler jobs will be found exactly alike, and for this reason it is imperative that each new conversion installation be given careful and individual attention.

SALES DATA SHEET

B-1

April, 1929

Generating Steam

NAME

ADDRESS

OPERATION

The boiler was operated at an average pressure of about 9 lbs., the steam generated being used for heating water. The condensate obtained from the coils in the water storage

TABLE SHOWING RESULTS OBTAINED ON COAL-FIRED BOILERS CONVERTED TO GAS FUEL

Type of Boiler	*Size*	*Stoker Used*	*Average Operating Pressure Pounds*	*Type of Gas Burning Equipment*	*Duration of Test Period*	*Per Cent of Rating Developed*	*Average Efficiency for Duration of Test Period in Per Cent*
Kewanee Down-Draft	105	Hand Fired	9	Blast	7 days	20.4	73.6
Titusville Firebox	56	Hand Fired	40	Blast	2 days	48.2	67.4*
Kroeschell Water Tube	250	Chain Grate	120	Natural Draft	1 day	57.2	75.3
Springfield Water Tube	600	Chain Grate	123	Natural Draft	1 day	85.8	74.8
Springfield Water Tube	600	Chain Grate	123	Natural Draft	1 day	118.0	72.8

* This test conducted on an uninsulated boiler. It has been calculated that an efficiency of 74.9 per cent can be obtained by insulating this boiler. The boiler has since been insulated, but a new test has not been conducted.

tank was returned to the boiler. The average load on the boiler was about 21 boiler horsepower, the maximum load being about 35 and the minimum about 10 boiler horsepower.

EQUIPMENT

The boiler was a No. 318 Kewanee downdraft designed for coal firing. It had a rated capacity of 105.3 boiler horsepower based on 10 sq.ft. of heating surface per boiler horsepower and was covered with 2½ in. of insulation. The boiler had a regular rocking grate and a water grate about midway between the rocking grate and the crown sheet. The gas burners were applied to fire above the water grate, the space above which was bricked up so as to form a checker work for the products of combustion. The burner equipment consisted of two nozzle mixing burners made up of standard pipe fittings. Each burner had a capacity of about 1400 cu.ft. of gas per hour. The door opening around the burners was bricked up, excepting a 2½ in. x 4½ in. opening for each burner used for lighting and observation and a 1½ in. diameter hole for each burner used for the pilot burners. The 2½ in. x 4½ in. openings were kept closed during operation. The pilot burners were placed just outside of the door brickwork, each directing a small raw gas flame through its respective opening. Each pilot consumed about 10 cu.ft. of gas per hour. A secondary pilot was provided by by-passing about 30 cu.ft. of gas per hour around the gas control valve so that when the main fuel supply was shut off this by-passed gas continued to burn. The air supply to the burners was furnished by a 4-E Buffalo blower directly connected to a ½ h.p., 220 volt, D. C. motor. The blower had a rated capacity of 300 cu.ft. of air per minute at a pressure of 2½ oz. Gas was supplied at a pressure of 5½ in. to 6 in. of water column. Flue restrictors were not placed in the boiler flues. The fuel supply to the boiler was automatically controlled (either all on or all off) by means of the boiler steam pressure. The control equipment consisted of a No. 848-A1 Mercoid control switch placed in the blower power line and actuated by the boiler steam pressure. The gas supply was controlled by means of a 2½ in. Time-O-Stat diaphragm valve which was actuated by the blower pressure.

TEST DATA

Duration of Test	7-24 hr. days
Total Water Evaporated	109,652 lbs.
Average Boiler Pressure	8.8 lbs.
Average Feed Water Temperature	90.7° F.
B.t.u. Absorbed per Pound Water Evaporated	1100.5
Total Heat Absorbed	120,672,000 B.t.u.
Average Boiler Horsepower per Hour	21.4
Average Draft in Flue Off-Take	.037" H_2O
Average Flue Gas Temperature	213.5° F.
Total Gas Consumption	309,400 cu.ft.
Average Heating Value of Gas per Cubic Foot	530 B.t.u.
Average Gas Consumption per Boiler Horsepower	85.8 cu.ft.
Total Heat Input	163,982,000 B.t.u.
Average Efficiency for 7-Day Period	73.6%

SALES DATA SHEET

B-2

October, 1930

Generating Steam

OPERATION

The boiler was operated under full automatic control, the steam generated being used for heating water. The condensate from the water storage tanks was returned to the boiler by means of a steam trap.

EQUIPMENT

The boiler tested was an uninsulated portable T—55 Titusville, rated at 56 horsepower and equipped with manually operated grates. The boiler was converted to gas firing by removing the grates, ash pit doors, and front plate, and lining the ash pit floor and combustion chamber with fire brick. Four burners connected to a common manifold were set in the ash pit opening. The combustion system, designed by the Steam and Combustion Company, consisted of four Hyperbo burners having a total capacity of 5000 cubic feet of gas per hour. Air was supplied to a 4" venturi mixer at a pressure of 5.6" of water column by a Coppus type G. M. No. 3-8 blower. Gas was supplied at 4" water column through a 3" Connelly governor and Davis automatic cut-off valve. A Minneapolis "Pressuretrol" provided automatic pressure control which opened the blower motor circuit at 45 lbs. and closed it at 36 lbs. The Davis valve was actuated by the blower pressure so that gas could be obtained at the main burner only when the blower was running. The burner operated either all on or all off. Automatic safety pilots were used. The average flue gas analysis was CO_2—9.7%, O_2—1.1%, and CO—0.0%.

TEST DATA

Duration of test	24 Hours	24 Hours
Actual weight of water evaporated	21,241 lbs.	20,492 lbs.
Average steam pressure	40.5 lbs.	40.5 lbs.
Average feed water temperature	181° F.	162° F.
Factor of evaporation	1.0578	1.0775
Water evaporated from and at 212° F.	22,469 lbs.	22,080 lbs.
Average boiler horsepower per hour	27.1	26.7
Average draft in firebox—burners on	.01"	.01"
Average draft in firebox—burners off	.04"	.04"
Average flue gas temperature	407° F.	406° F.
Total gas consumption—cubic feet	61,100	60,000
Heating value of gas per cubic foot	530 B.t.u.	530 B.t.u.
Cubic feet of gas required per boiler horsepower	93.7	93.7
Total heat output in 1000 B.t.u.	21,795	21,418
Total heat input in 1000 B.t.u.	32,383	31,800
Efficiency of boiler over 24 hr. period	67.4%	67.4%

Note: It has been calculated that an efficiency of 74.9% can be obtained by insulating this boiler.

Determination of the Effect On Wall Tile Glazes of Direct-Firing With Gas

(Continued from page 133)

Summary

1. Forty-six wall tile glazes, including several different commercial types, have been direct-fired in an oxidizing furnace atmosphere composed of the products of combustion of public utility gas plus excess air. These glazes include:

A. Commercial Glazes.
   (1) White Glazes:
      a. Bright.
      b. Matt.
   (2) Colored Glazes:
      a. Bright.
      b. Matt.

B. Glazes Prepared in the Laboratory.
   (1) White Glazes:
      a. Bright.
      b. Matt.
   (2) Colored Glazes:
      a. Bright.
      b. Matt.

2. In addition to white glazes, it has been shown that colored glazes can be successfully direct-fired with gas without destroying the color.

3. The results of the work on the direct-firing of wall tile glazes have largely confirmed the results obtained in the strictly laboratory phase of the investigation.

4. The direct-firing tests have shown that "flashing" or direct impingement of the flame against a glaze surface must be prevented to obtain successful results, but that this can be done by applying sound furnace engineering.

It is interesting to note that a wall tile plant in the Trenton, N. J., district has recently converted one of its large electrically fired kilns into a direct-fired kiln, using manufactured gas as fuel. Some difficulties were at first experienced with this kiln but after consultation with the Rutgers University Department of Ceramics, certain recommendations were made regarding the placement of burners and setting of ware which resulted in the production of ware of excellent quality. Protection against direct impingement of flame on the tile nearest the burners was provided for and a schedule of atmospheres was worked out. This kiln is now being successfully operated. The same company is also direct-firing their tile with gas in the biscuit burn and has experienced no difficulties in maintaining the highest quality.

NATURAL GAS DEPARTMENT

GEORGE W. RATCLIFFE, Chairman A. E. HIGGINS, Secretary FRANK L. CHASE, Vice-Chairman

An Outsider Looks at the Natural Gas Industry*

By Carlton G. Ketchum

TO the ordinary business man, the natural gas business appears as did the Promised Land to the Israelites, so many centuries ago. Spent with his wanderings in the desert of deflation, worn thin on his diet of depression manna, weary of following after prosperity's far-away pillar of smoke, this average business man comes out one day on a distant height and surveys the utilities' green fields beyond. Here are no troubles, no thirst, no hunger, no Egyptians. "A land of milk and honey," said Moses' scouts; our modern man, using modern language, says, "How long has this been going on?" and, "Pretty soft!"

That once was my opinion, too, before I came nearer and saw the close-up details of what once was only a far-off, beautiful picture. Now that I realize that you of Canaan have just as much trouble with your Philistine neighbors as we Israelites have had with the Egyptians in the apartment upstairs, I am less inclined to envy and more tempted to sympathize.

Today, I am inclined to believe that the inherent advantages of the average utility are pretty evenly balanced by its inherent handicaps. Exclusive franchises, relative freedom from competition, guaranty of fair return on investment, all seem subject to the familiar law of compensation. On the other side of the ledger we find such disadvantages as restricted profits, the necessity of huge capital investment, prohibitions and inhibitions of all kinds, constant exposure to suspicion and criticism. An old story to you, of course; but most of us outsiders know nothing of it until we decide to look closer at your green fields. Then, if we look closely, we discover that the soil is no better, the sun no brighter, the grass no richer. We find that you, too, have competitors; that you have diminishing volume and vanishing profits; that you, too, are faced by that universal question of 1933, "Where do we go from here?"

But most people don't know your difficulties, nor do they know those things which the gas industry is doing to serve its public. Call it envy, call it misunderstanding, or what you will, there is no doubt that the public's lack of knowledge of your industry is one of your most costly handicaps. Just as costly, if it exists, is your lack of knowledge of that same public.

My most definite impression of your industry is of its conservatism. Perhaps the best illustration is out of my own experience. I have lived in Pittsburgh for twenty years; for eighteen of those years I have rented or owned a home. In all that time, I have used natural gas for central heating; today, I have a gas boiler, gas room heaters, a gas range, a gas incinerator, a gas laundry stove, and a gas water heater. During all those years, I have been under pressure to buy electrical appliances, and oil burners and coal, and coke; but in all that time, no gas company representative—except the meter reader—has called at my house or office to attempt to sell me anything. They haven't even tried to sell me the idea of continuing to use gas! As it happens, they haven't had to. But isn't it dangerous for you to leave a customer entirely exposed to the attacks of your competitors without any response from your industry?

The average American doesn't purposely expose himself to sales efforts; in most instances, he isn't even conscious that an industry has ignored him, because he's so busy dealing with those industries which are giving him constant attention. If the ordinary citizen were reminded that the natural gas people have left him alone, he would be mildly grateful; but that kind of gratitude won't pay your dividends.

Such a condition may be due to modesty. We admire modesty in the individual, but in a corporation it's one of the major commercial crimes—a crime against stockholders, employees, even against customer. Neither Emerson, nor Elbert Hubbard who misquoted him, believed that the world would beat a path to the door of the maker of better mousetraps. Neither do you; neither do I. If you have a better mousetrap, tell the world about it; tell your story loudly, and repeatedly. In natural gas, you have the best mousetrap. Don't keep it a secret.

Please don't assume that this is just the regular advertising man's appeal for you to advertise. "Amen" to that idea, yes; but advertising is not the whole story. It's just a part. Another part is selling and another is employee education, and another is that complicated thing we call customer relations. In all these activities, there is room for more aggressive promotion of natural gas. You men here believe there is nothing so good as natural gas. Your whole job isn't done unless all your employees believe it and talk it and all your customers and prospects have had it thoroughly drummed into their ears.

As a user of your product and your service, as a potential buyer of more, I haven't been told enough about natural gas. I need to be reminded; in some instances, I need to be informed of things I never knew or understood.

Natural gas companies need to cultivate the philosophy of a man I knew, who said: "I have done many favors for many men, but I never fail to let the man know I did the favor." It isn't enough for you to maintain good service and sell good appliances; you must tell me about it. If you don't, I may forget you and some day the electrical industry, or the automatic stoker, or the coal dealer gets a new customer and you lose an old one.

I realize that you are handicapped by numbers; that your problem of customer relations is so serious because all the public are your customers and many of those customers buy so little from you that you can't afford to spend too much time or money cultivating them. But you can't forget that, while the big customer is today's meal ticket, the little fellow may be a big one tomorrow. You, more than most others, have to remember Flaubert's dictum that "Talent is only sustained patience." The things you do to win and hold your customers you must do again, and again and yet again.

This matter of customer relations gets down to small things, in the main. Even though no gas company representative has tried to sell me anything, I think well of the industry because my detailed contacts with the companies have been free from annoyance. Samuel Crowther says that "The actions of a collector with a bill mean more to the householder than do all the great questions of public policy put together" and all of us know that the meter reader or the clerk at the contract office may win or lose an account any day. All of you have learned from experience that it may be only the mud on the iceman's shoes that gave you an order for a refrigerator.

With so many of your customers, your only contact throughout the year is the meter reader's visit and the receipt of the monthly bill. That's dangerous to any business. Perhaps it's the foundation of

* Digest of address before A. G. A. Eastern Natural Gas Regional Sales Conference, Hotel Schenley, Pittsburgh, Pa., March 3, 1933.

much of the public's present-day lack of sympathy for your companies and for utilities generally. Mr. Citizen has no pleasurable contact with you—never hears from you except when you suggest payment.

How well do your own employees know the story of natural gas; how familiar are they with your company policies; how competent are they to carry out those policies in a way which will win and hold public approval? It's almost too trite for repetition that your smallest employee can lose your largest customer; but it is true and it constitutes one of the greatest hazards which you sales executives face. And you know without reminder that handling complaints is often like re-thatching a bald head. The time for effective action is before the trouble starts. I found that out.

Probably you feel handicapped in your work by the fact that you are selling such an intangible thing. Intangible, yes; but so is electricity; so are many other things. Intangibles, indeed, are what the customer wants; the intangibles of health, and cleanliness, and comfort, and even the desire to keep-up-with-the-Joneses.

On this point of intangibility, it has seemed to an outsider that one of the handicaps of your industry is to sell its product in units of cubic feet. No customer can visualize a cubic foot of gas; no one wants to buy it. He wants rather to buy a comfortable house or properly cooked food or hot water. Can't the natural gas industry interpret cubic feet in some way which will mean more to the consumer? Even the "therm" doesn't seem to be the right answer. Your average customer knows so few therms.

You are competing today in a restricted market; a market where many of the old standards of selling and credit practice are gone. You are competing, not only with other fuels, but with such far-fetched rivals as the automobile, the jewelry store, the travel agency, the college, the savings bank. I have a neighbor whose wife wants to change from gas heat to coal. On the surface, your competition is coal. But she really wants to make the change so that, with her monthly savings, she can buy more clothes. In that particular case, your competition is not the coal industry, but a department store or dressmaker. And if you retain this customer, it won't be a victory for natural gas over coal but rather a victory for comfort and leisure and cleanliness, and a defeat for hard work and tiresome stairs and dirty curtains.

Most of your new business this year and every year must come from your old customers. That means you must be on your mettle every day; that your service and accounting and engineering and other departments must be just as alert to your company's interests and just as sensitive to the public viewpoint as are your salesmen. It means that every one now on your books should be kept constantly aware of the merits of gas, and the services which you render. It means the most thorough cultivation of every prospect, the most intensive attempt to expand each account and bring it up to profitable levels.

In addition to re-education of old customers, there will always be the need of initiating new groups of prospects. Each year, in your territory, 2 per cent of the population come to voting age, to years of maturity. to organization of their own homes. Each year, families move into your territories from areas where they never knew natural gas; each year, some families move up into the income brackets where they become active and profitable prospects for you. New faces, new eyes, new ears; new minds, that don't know your story and have to be told and retold. And with all our hard times, with all the difficulties that face us, it's still true that "they'll buy if they want it badly enough." You're the men who have to make them want it.

New Jersey Finds Promising Field for Air-Conditioning

DISCUSSING "business of the operating companies," in its annual report for the year ended December 31, 1932, the Public Service Corporation of New Jersey says:

"Gas sold for industrial and commercial purposes amounted to 6,231,903,000 cu.ft., a decrease of 4.40 per cent from 1931. The lower volume of sales is due largely to a curtailed demand from large industrial consumers.

"Despite the low ebb of business activity 439,355 cubic foot hours of new connected industrial load and 359,511 cubic foot hours of new commercial connected load, were added during the year.

"There was a net gain of 137 in the number of building heating installations connected to the company's mains, bringing the total on December 31, to 2,433. Sales of gas for building heating totalled 1,036,191,000 cu.ft., an increase of 8.93 per cent over 1931.

"In recognition of the growing public interest in air conditioning as applied to buildings both in summer and in winter, a department was organized to promote the use of gas and electricity for this new convenience. Air conditioning can now be successfully accomplished within a home, theatre, office, factory, or any other building, by means of gas and electric appliances and offers a promising field for the development of future business."

Utility-Dealer Cooperation vs. Legislation

PLUMBING and heating contractors will gain more by cooperating with public utilities in the merchandising of gas and electric appliances than they could hope to attain through efforts to have the utilities legislated out of the appliance selling field. In substance, this is what George H. Drake, formerly president and now a director of the National Association of Master Plumbers, told the recent mid-winter meeting of the Pennsylvania Association, and it is the view expressed by officers of the New York State Association in urging members to oppose a bill calling for the elimination of utilities from the appliance selling business.

This is sound advice. It is an indication of a definite change of thought on the subject, for it was not so long ago that plumbing and heating contractors in many states were actively seeking anti-utility selling legislation.

Speaking at the Ohio master plumbers' convention last month, Walter Cahill, Akron contractor, told his fellow craftsmen that "utilities do not want to merchandise where the dealer will do the job for them." He further declared that the utilities "are willing and anxious to give actual promotional aid to those who seek it, and who are willing to put forth the necessary effort to produce gas appliance sales."

No better example of the gratifying results of such a policy to both the utility and the contractor-dealer need be sought than the "Clean Up Month" campaign staged in central New York State last fall. Utility and independent dealers worked hand in hand during this drive and, all told, sold 273 gas and electric water heaters and 1,067 gas and electric ranges in six weeks' time. Plumbing and heating contractors throughout the territory cooperated without stint and found it profitable to do so, if the testimonials published in this issue are a fair indication of the general views of all participating contractors.—*Plumbing and Heating Trade Journal, March, 1933.*

PUBLICITY AND ADVERTISING SECTION

JAY C. BARNES, Chairman — ALLYN B. TUNIS, Secretary — HENRY OBERMEYER, Vice-Chairman

Consolidated of New York Shifts Obermeyer, Crone, Nast, Weeks

Henry Obermeyer

HENRY OBERMEYER, assistant to vice-president, has been placed in charge of the advertising of the gas and electric companies affiliated with the Consolidated Gas Company of New York, New York, N. Y., according to an announcement made by Oscar H. Fogg, vice-president.

Cyril Nast, formerly advertising manager of the New York Edison Company, has been appointed manager of the advertising bureau of the companies.

Cyril Nast

Mr. Obermeyer has been with the Consolidated Gas Company for seven years, in charge of advertising for the group of gas companies. Prior to this he was with the American Gas Association, and was editor of THE MONTHLY.

Mr. Nast, who is the son of Thomas Nast, celebrated cartoonist, has been with the New York Edison Company for twenty-seven years. He is chairman of the Board of Trustees of the Association of Employees of the New York Edison Company.

Colonel Fogg also announced that F. W. Crone has been placed in charge of the publicity and editorial activities of the gas and electric companies affiliated with the Consolidated Gas Company. He will be director of the editorial bureau of the companies, and Howard F. Weeks will be assistant director.

F. W. Crone

Mr. Crone has been connected with the New York Edison Company for more than four years, in charge of advertising and publicity for the group of electric companies. He was at one time Director of the New York State Committee on Public Utility Information, and previous to this was a reporter, political correspondent, and editorial writer on the *New York Tribune.*

Howard F. Weeks

Mr. Weeks has been assistant advertising manager of the Consolidated Gas Company for the past three years. He also is a former editor of THE MONTHLY, and is well known among Utility Advertising and Publicity Circles.

Names Judges To Serve in "Better Copy Contest"

JUDGES of the "Better Copy Contest," sponsored annually by the Public Utilities Advertising Association, have been announced by President E. Frank Gardiner as follows:

Bruce Barton—Batten, Barton, Durstine & Osborn, 383 Madison Avenue, New York, N. Y.

L. R. Boulware, General Sales Manager—Easy Washing Machine Corporation, Syracuse, N. Y.

F. W. Crone—New York Edison Company, 4 Irving Place, New York, N. Y.

Walter J. Daily, Manager, Sales Promotion Division—Electric Refrigeration Department, General Electric Company, Hannah Building, Cleveland, Ohio.

Alexander Forward, Managing Director—American Gas Association, 420 Lexington Avenue, New York, N. Y.

E. Frank Gardiner, Publicity Director—Midland United Company, 122 South Michigan Avenue, Chicago, Ill.

Charles Gordon, Managing Director—American Transit Association, 292 Madison Avenue, New York, N. Y.

W. A. Grove, Manager, Advertising & Sales Promotion—Edison General Electric Appliance Co., Inc., 5600 W. Taylor Street, Chicago, Ill.

Rudolf Guenther—Albert Frank-Guenther Law, Inc., 70 Pine Street, New York, N. Y.

H. K. McCann—McCann Erikson, Inc., 285 Madison Avenue, New York, N. Y.

Earle Pearson, General Manager—Advertising Federation of America, 330 West 42nd Street, New York, N. Y.

Bernard F. Weadock, Executive Director—Edison Electric Institute, 420 Lexington Avenue, New York, N. Y.

The judges are expected to meet in New York early this month.

Executive Evaluation of Sales Activities

(Continued from page 148)

refrigeration, and the latest development in gas refrigeration makes every other type of domestic refrigeration antique. Not over 12 per cent have modern gas ranges. Only four in 100 have automatic storage type water heaters. Only five out of 100 heat with central gas-fired heating plants. While our records indicate that over 60 customers out of 100 are equipped with space heaters, our employees last fall sold 2500 space heaters in a thirty-day campaign.

There is a genius in this gas industry not yet aroused. While it has lacked the very great advantage which the electrical industry has had by reason of strong equipment manufacturing concerns able to promote the use of electricity with extensive national advertising, it can still fire the imagination of consumers with genius of gas. Manufacturers of gas equipment will develop this support if we cooperate with them in building sales power. The public is just as willing and ready to believe in the magical genius of gas. Every doubt restraining our growth can be leveled by well-organized, intensive, hard-hitting selling of every value and service we have to offer. To fail in the application of sales methods to every phase of our industry will be to deny our right and ability to greater achievements and finer successes.

New Gas Field

Opening of a new gas field just east of Petersburg, Ind., has been announced with the drilling in of the Dr. Charles C. Talliaferro gas well near the east city limits. The well was drilled in the Oakland City sand at a depth of 1,125 feet.

TECHNICAL SECTION

J. A. PERRY, Chairman H. W. HARTMAN, Secretary O. S. HAGERMAN, Vice-Chairman

Redrilling of Manufactured Gas Appliance Burners for Adaption to Higher B.t.u. Gas*

J. A. Perry

By J. A. Perry
Chairman, Technical Section

IT is well known that many manufacturers provide different port sizes in their burners for manufactured gas and for mixed and straight gases of a much higher B.t.u. content, using a larger port for the latter than for the former. This change is desirable to compensate for the slower burning characteristic of a higher B.t.u. gas and to maintain the rated burner capacity.

A burner normally adjusted and having a port area just about sufficient to provide the rated capacity on manufactured gas, will, with the same flame characteristic, give an appreciably lower capacity on a higher B.t.u. gas. Of course, some compensation for this loss in capacity can be made by using a soft flame adjustment to slow up the rate of flame propagation and prevent the flame from lifting or blowing off the ports. This blowing tendency may be more marked when admixtures of manufactured gases, relatively high in inerts, are involved, and accordingly, under these conditions, the advantage of larger burner ports is even greater.

Recognizing that better operating conditions must inevitably prevail where the larger ports are used, we conducted some tests on the feasibility of redrilling existing burners. That such procedure might present difficulty was quite evident, when considering that over-heating, particularly in the case of burners operating in confined spaces—such as oven burners—tends to cause hardness. Accordingly, any redrilling operation would most likely be attended with considerable drill breakage.

For the purpose of our investigation we centered on the gas range oven burner as representing about the maximum degree of hardness we should expect to encounter. Trials of a number of ordinary and special high speed drills, including "diamond point" drills and rose chucking reamers, were disappointing. Then the following article in an issue of *Fortune* magazine last year was noted:

Hardest Metal

> Just about the hardest commercial metal in the world is Ramet, which was developed by the Fansteel Products Company, Inc., and which is hard enough to scratch rubies or sapphires. (An engineer would tell you with some awe that it tests more than ninety hard on the Rockwell "A" scale, which means that it is very, very hard.) Ramet, however, can't scratch a diamond. Only another diamond can do that. Ramet's real merit is that it can cut through 15 per cent manganese steel, an unmachinable metal, and give it a perfect finish in practically no time. It once took two long days of grinding to do that.

Inquiry resulted in the submission of sample burners to the Ramet Corporation of America, North Chicago, Ill. That company advised us of its confidence in the development of a Ramet tipped drill to satisfactorily enlarge gas range burner ports, no matter how hardened they may have become.

Preliminary trials by us of two drills (No. 30 g. and No. 34 g. M.D.S.) have given confirmation of the manufacturer's claims. The drills are operated at about 1,000 r.p.m. without lubricant. They are of the flattened diamond-point type and the cutting edges may be reground. They are expensive and for that reason no chances with disaligned work can be afforded.

The one limitation in the use of Ramet is that the drill must be in fixed alignment with the work in order to prevent breaking off the Ramet tip. There should be no difficulty in maintaining this alignment in an ordinary drill press, but there might be some problems involved if it is proposed to use these drills in portable drills.

Compared with ordinary drills, the facility with which these drills cut through hardened oven burners is most gratifying. The No. 30 drill has been used so far on about 700 ports without need of regrinding. The No. 34 drill was broken after use on about 200 ports, due to carelessness in holding a burner. Due to the shortness (⅜") of the tips, some inaccessible holes cannot be drilled, but these can be taken care of by good quality ordinary high speed drills.

* Reprinted by courtesy of "U. G. I. Circle," March, 1933

Gas Utility Revenues Decline in January

REVENUES of the manufactured and natural gas industry aggregated $69,997,600 for January, 1933, as compared with $74,094,100 for January, 1932, a decline of 5.5 per cent.

The manufactured gas industry reported revenues of $34,288,400 for the month, a drop of 8.8 per cent from a year ago, while revenues of the natural gas industry totalled $35,709,200 or 2.2 per cent less than for January, 1932.

Sales of manufactured gas reported for January totalled 32,323,900,000 cubic feet, a decline of 6.9 per cent, while natural gas sales for the month were 90,047,200,000 cubic feet, a drop of 1.1 per cent.

As of January 31, 1933, total customers of the industry aggregated 15,376,500, as compared with 15,985,200 on the corresponding date of the preceding year, an indicated loss of more than 600,000 customers during the twelve month interval.

The relatively smaller decline in sales and revenues reported by the natural gas industry resulted from a gain of 2.4 per cent in sales to domestic users and an increase of 5 per cent in commercial sales. This was more than offset however by declines in sales of natural gas for industrial purposes.

The only gain reported by the manufactured gas industry was in the sale of gas for house heating, which increased nearly 6 per cent for the month. Manufactured gas sales for other domestic uses, such as cooking, water heating and refrigeration, showed a loss of 7.4 per cent, while sales for industrial-commercial purposes declined nearly 11 per cent.

Monthly Summary of Gas Company Statistics

FOR MONTH OF JANUARY, 1933

Issued March, 1933, by the Statistical Department of the American Gas Association
420 Lexington Avenue, New York, N. Y.

PAUL RYAN, Statistician

COMPARATIVE DATA ON THE MANUFACTURED AND NATURAL GAS INDUSTRY FOR THE MONTH OF JANUARY

	Month of January		
	1933	1932	Per cent Change
Customers			
Domestic (Including House Heating)	14,419,700	15,018,500	— 4.0
Industrial and Commercial	956,800	966,700	— 1.0
Total	15,376,500	15,985,200	— 3.8
Revenue (Dollars)			
Domestic (Including House Heating)	52,671,200	55,192,700	— 4.6
Industrial and Commercial	17,326,400	18,901,400	— 8.3
Total	69,997,600	74,094,100	— 5.5

COMPARATIVE DATA ON THE MANUFACTURED GAS INDUSTRY FOR THE MONTH OF JANUARY

Customers			
Domestic	9,355,600	9,826,900	— 4.8
House Heating	61,200	58,900	+ 3.9
Industrial and Commercial	481,600	493,400	— 2.4
Miscellaneous	8,300	7,400	—
Total	9,906,700	10,386,600	— 4.6
Gas Sales (MCF)			
Domestic	21,937,200	23,698,500	— 7.4
House Heating	3,424,200	3,235,300	+ 5.8
Industrial and Commercial	6,777,700	7,590,700	—10.7
Miscellaneous	184,800	202,500	—
Total	32,323,900	34,727,000	— 6.9
Revenue (Dollars)			
Domestic	25,929,000	28,333,100	— 8.5
House Heating	2,292,300	2,402,800	— 4.6
Industrial and Commercial	5,945,200	6,727,600	—11.6
Miscellaneous	121,900	129,300	—
Total	34,288,400	37,592,800	— 8.8

COMPARATIVE DATA ON THE NATURAL GAS INDUSTRY FOR THE MONTH OF JANUARY

Customers			
Domestic (Including House Heating)	5,002,900	5,132,700	— 2.5
Commercial	443,800	441,200	+ 0.6
Industrial	16,500	17,100	— 3.5
Main Line Industrial	4,900	5,600	—12.5
Miscellaneous	1,700	2,000	—
Total	5,469,800	5,598,600	— 2.3
Gas Sales (MCF)			
Domestic (Including House Heating)	40,477,300	39,540,000	+ 2.4
Commercial	10,318,600	9,817,000	+ 5.1
Industrial	26,946,200	29,197,300	— 7.7
Main Line Industrial	11,511,900	11,623,500	— 1.0
Miscellaneous	793,200	861,700	—
Total	90,047,200	91,039,500	— 1.1
Revenue (Dollars)			
Domestic (Including House Heating)	24,449,900	24,456,800	0.0
Commercial	4,636,400	4,485,700	+ 3.4
Industrial	5,217,400	6,008,800	—13.2
Main Line Industrial	1,276,500	1,426,700	—10.5
Miscellaneous	129,000	123,300	—
Total	35,709,200	36,501,300	— 2.2

Associations Affiliated with A. G. A.

Canadian Gas Association
Pres.—Hugh McNair, Winnipeg Electric Co., Winnipeg, Man.
Sec.-Tr.—G. W. Allen, 21 Astley Avenue, Toronto.

Empire State Gas and Electric Association
Pres.—Alfred H. Schoellkopf, Niagara Hudson Power Corp., Buffalo, N. Y.
Chairman, Gas Section—A. M. Beebee, Rochester Gas & Electric Corp., Rochester, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.

Illinois Public Utilities Association
Pres.—Bernard J. Mullaney, The Peoples Gas Light & Coke Company, Chicago, Ill.
Sec.—J. R. Blackhall, Suite 1213, 79 West Monroe St., Chicago, Ill.

Indiana Gas Association
Pres.—R. S. Brunner, Indiana Gas Utilities Co., Richmond, Ind.
Sec.-Tr.—P. A. McLeod, New Castle, Ind.

Michigan Gas Association
Pres.—J. E. Spindle, Grand Rapids Gas Light Co., Grand Rapids, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.

Maryland Utilities Association
Pres.—F. A. Mitchell, Eastern Shore Public Service Co., Salisbury, Md.
Sec.—D. E. Kinnear, 803 Court Square Bldg., Baltimore, Md.

Mid-West Gas Association
Pres.—W. E. Derwent, Geo. D. Roper Corp., Rockford, Ill.
Sec.-Tr.—Roy B. Searing, Sioux City Gas & Electric Co., Sioux City, Iowa.

Missouri Association of Public Utilities
Pres.—A. E. Bettis, Kansas City Power and Light Co., Kansas City, Mo.
Sec.-Tr.—N. R. Beagle, Missouri Power & Light Co., Jefferson City, Mo.
Asst. Sec.—Jesse Blythe, 103 West High St., Jefferson City, Mo.

New England Gas Association
Pres.—H. R. Sterrett, New Haven Gas Light Co., New Haven, Conn.
Vice-Pres.—F. M. Goodwin, Boston Consolidated Gas Co., Boston, Mass.
Second Vice-Pres.—R. H. Knowlton, The Connecticut Light & Power Co., Hartford, Conn.
Treas.—F. D. Cadwallader, Boston Consolidated Gas Co., Boston, Mass.
Exec. Sec.—Clark Belden, 41 Mt. Vernon St., Boston, Mass.
Chairman, Operating Div.—P. R. Buchanan, Hartford Gas Co., Hartford, Conn.
Sec.-Tr., Operating Div.—D. R. Campbell, Portland Gas Light Co., Portland, Me.
Chairman, Sales Div.—H. B. Hall, Old Colony Gas Co., East Braintree, Mass.
Sec.-Tr., Sales Div.—R. J. Rutherford, Cambridge Gas Light Co., Cambridge, Mass.
Chairman, Industrial Div.—P. A. Nelles, Charles H. Tenney & Co., Boston, Mass.
Sec.-Tr., Industrial Div.—S. F. Morgan, New Bedford Gas & Edison Lt. Co., New Bedford, Mass.
Chairman, Accounting Div.—Leland Balch, Lowell Gas Light Co., Lowell, Mass.
Sec.-Tr., Accounting Div.—C. D. Perkins, Malden & Melrose Gas Light Co., Malden, Mass.
Chairman, Manufacturers Div.—C. H. Cummings, Industrial Appliance Co. of N. E., Boston, Mass.
Sec.-Tr., Manufacturers Div.—J. H. McPherson, James B. Clow & Sons, Boston, Mass.

New Jersey Gas Association
Pres.—F. A. Lydecker, Public Service Electric and Gas Co., Newark, N. J.
Sec.-Tr.—G. B. Webber, Public Service Electric and Gas Co., Newark, N. J.

Ohio Gas and Oil Men's Association
Pres.—L. K. Langdon, Union Gas & Electric Co., Cincinnati, Ohio.
Sec.-Tr.—Wm. H. Thompson, 811 First National Bank Bldg., Columbus, Ohio.

Oklahoma Utilities Association
Pres.—R. J. Benzel, Southwestern Bell Telephone Co., Oklahoma City, Okla.
Mgr.—E. F. McKay, 1020 Petroleum Bldg., Oklahoma City, Okla.

Pacific Coast Gas Association
Pres.—Harry L. Masser, Los Angeles Gas and Electric Corp., Los Angeles, Calif.
Mang. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association
Pres.—Lewis W. Heath, Pennsylvania Power & Light Co., Williamsport, Pa.
Sec.-Tr.—Frank W. Lesley, Pennsylvania Gas & Electric Co., York, Pa.

Pennsylvania Natural Gas Men's Association
Pres.—J. French Robinson, Lycoming Natural Gas Co., Pittsburgh, Pa.
Sec.-Tr.—B. H. Smyers, Jr., 435 Sixth Ave., Pittsburgh, Pa.

Southern Gas Association
Pres.—J. J. Brennan, Memphis Power & Light Co., Memphis, Tenn.
Sec.-Tr.—S. L. Drumm, New Orleans Public Service Inc., New Orleans, La.

Southwestern Public Service Association
Pres.—Knox Lee, Southwestern Gas & Electric Co., Marshall, Texas.
Sec.—E. N. Willis, 1801 No. Lamar St., Dallas, Texas.

The Public Utilities Association of Virginia
Pres.—T. Justin Moore, Va. Elec. & Power Co., Richmond, Va.

Wisconsin Utilities Association
Pres.—E. J. Steinberg, The Milwaukee Electric Railway & Light Co., Milwaukee, Wis.
Exec. Sec.—J. N. Cadby, 135 West Wells St., Milwaukee, Wis.

International Gas Conference
AND
Fifteenth Annual Convention
of the American Gas Association
◆
Chicago, Ill.
Week of
September 25, 1933

Personnel Service

SERVICES OFFERED

Engineer experienced in domestic and industrial house and water heating, domestic appliance sales, air conditioning, can submit plans and achievements in creative or competitive selling ability. Utility and manufacturer experience with large following among dealers and utility companies east of Chicago. Twenty-four years' experience. **681.**

Safety engineer, technical graduate, familiar with all phases of utility accident prevention program, compensation, public liability, automobile and fire experience over a period of a few years. Qualified to assist a utility or manufacturer to lower insurance costs through efficient safety work. **682.**

Executives attention! With engineering corps reduced to handle routine problems only, why postpone the solution of that special problem involving considerable investigation when you can temporarily employ a thoroughly trained **gas engineer** and executive at present unemployed. Have had sixteen years of operating and engineering experience in responsible positions. **684.**

Industrial engineer with sound engineering background and many years' experience designing, selling and installing industrial gas equipment. Have been particularly successful in converting large newspaper plants, coffee roasting companies, foundries and heat treating plants from coal to gas. **693.**

Manager experienced in manufactured and natural gas and electricity. Has handled exceptional difficult situations in operating, new business and electric competition and natural gas change-overs. **695.**

Graduate **engineer** with utility and industrial experience, capable of managing district as well as the industrial engineering where a special industrial department is not warranted or where utility company wishes to economize by consolidating these duties. **697.**

Sales manager. Eighteen years with one utility company plus sales promotion experience with one of the largest gas appliance manufacturers. Outstanding record in merchandising and sales management, experienced in meeting electric competition. Well qualified in building good will. **698.**

Assistant to utility executive. Four years with leading gas magazine as natural gas editor in southwest and south, news editor and advertising copywriter has acquainted me with all departments of gas business and provided a national viewpoint on current problems. University graduate and special student (31). Single, willing to go any place. **699.**

Sales manager. Correspondence invited from company seeking experienced honorable man with successful, broad experience, organizing ability, technical advertising, sales promotion and managerial attributes. College graduate, excellent health, optimist, no objection to travel. **700.**

Salesman (30). Twelve years' diversified successful sales experience, including marketing gas appliances through dealer co-operative plan and survey. Has been very successful in making contacts and closing sales; student of A.G.A. Sales Course. **701.**

Operating or holding company in need of experienced practical and technical **adviser,** capable of correcting plant conditions and operation so as to lower holder costs can secure such a man having fifteen years' plant experience and five years' advisory work with large holding companies. **702.**

Salesman—appliances. American. Keen merchandiser. Ten years' experience contacting public utilities, manufacturers, department and chain stores, real estate organizations, jobbers and retailers. Familiar sales promotion and missionary work and sales crews, house to house campaigns. (29) Single. Living Salary. **703.**

Sales executive. Over 25 years' experience in sales contacts with utilities for large gas appliance manufacturer. Familiar with sales promotion and distribution. A competent director of personnel. Seeks connection with growing concern. **704.**

SERVICES OFFERED

A young, but thoroughly seasoned, public utility **executive** well qualified to build industrial, house heating, or commercial **sales** under existing business conditions is immediately available. Thoroughly familiar with gas industry's problems. Has many workable schemes for load building. Desires position immediately with aggressive utility or appliance manufacturer. **705.**

Eleven years as **salesman,** estimating heating requirements for architects, plumbers, steamfitters, gas companies and retail trade. Also helping gas company sales force in promoting sales of gasteam radiators and Clow Gas Furnaces. **706.**

Natural gas **engineer** (36). Ten years' experience with operating company and management corporation. Specially fitted to handle all engineering problems of a natural gas company from production to distribution. Thoroughly familiar with production engineering, design and valuation. Available on short notice. **708.**

Research engineer, European technical education; four years' experience with leading American manufacturer of gas appliances. Familiar with design, testing, development of water heaters, boilers, furnaces, conversion burners and radiators. Has handled gas utilization laboratory and supervised appliance installations. Desires position in connection with development or sales promotion of gas appliances. **709.**

House heating graduate **engineer:** ten years' practical experience application of gas to house heating manufactured and natural gas covering direct sales to customers, salesmen training and supervision, organization of department for sales, installation and service; development of rates and merchandising. Also industrial, distribution, construction and property management experience. **710.**

Sales manager—engineer thoroughly experienced manufactured, natural gas, and combination company sales promotion, merchandising, rate, publicity and utilization activities wishes connection with utility or manufacturer where more than nineteen years' training can be used to advantage as assistant to busy executive. **711.**

Sales representative. Experienced in all kind of house heating equipment, gas appliances and sales promotion or would consider representing a gas range or water heater company for the State of New Jersey and Eastern New York. **712.**

Sales engineer (B.S.) several years' practical plant experience in heat treating including supervision chemical and metallurgical laboratory large organization. Can specify materials, conduct research; wide personal acquaintanceship principal steel using industries metropolitan area. Knowing all available fuels could sell for gas company or manufacturer. **713.**

Manufacturing executive. Young, aggressive, reliable, graduate mechanical and industrial engineer. Experienced in production, development, design and sales. Radio, electrical, automobile accessory, air conditioning, heating and ventilating industry associations. Now connected with manufacturer as gas furnace sales manager. Especially adaptable to installation and supervision of scientific management methods of manufacture. **714.**

Public relations. Fifteen years' experience in advertising and public utility field. Customer contact, employee education, coordination of advertising policy, appliance merchandising and dealer cooperative advertising. Experienced in trade relation problems, utility association procedure, and industry cooperative merchandising plans. **715.**

Experienced **sales** representative has valuable background of association with two important gas corporations. Has secured many unusual sales records and is thoroughly versed in appliance manufacturing as well as sales. Here is opportunity to connect with associate who can give not only loyal service but has exceptional business-getting capacity. **716.**

Manager and Operating **engineer** experienced in production, distribution and sale of manufactured, natural and mixed gases and in the holding company's methods of control over operating of subsidiaries. In position to go anywhere for permanent or temporary employment. **717.**

Reduced income of gas companies require better and more intelligent plant control to help maintain dividends. Experienced **gas engineer** can bring to your organization or company that technical and practicable aid necessary to further reduce operating expenses to a minimum. **718.**

Budget director. Executive, engineering training, fifteen years' experience management gas and electric companies, qualified supervise preparation, operation, control of budgets. With practical background all branches gas electric industry, understanding financial requirements, able secure coordinated perspective for construction, operating and financial budgets. Can analyze costs, prepare explanatory reports on actual operations. **719.**

A gas **house heating** sales engineer with eight years' experience in the gas heating and industrial gas fields would like to locate with a gas company; services are available immediately. **720.**

Practical gas **distribution** man (40) married, with varied construction and sales experience, desires employment with organization offering future to one who is energetic and ambitious. Expects compensation commensurate with his accomplishments and the satisfactory results he knows he can obtain. **721.**

Sales director available for gas range manufacturer seeking wider markets. Advertiser has valuable contacts among all important gas range outlets, especially eastern territory. A successful record of sales and sales administration, backed by wide experience in manufacturing and general management insures accomplishments. Full particulars on file with Personnel Service. **722.**

POSITIONS OPEN

Sales manager for organization just getting into production with new self-contained cooking device, for restaurants, lunch rooms, road stands, concessions, etc.; accustomed to dealing with utility companies, jobbers, dealers and distributors. Salary and commission basis; headquarters New York City. **0255.**

USING THE CONFIDENTIAL CLASSIFICATION RECORD

March 14, 1933.

"We are glad to inform you that we have engaged Mr._____ to fill the position we have open. Before interviewing Mr._____ we investigated his references and the same were very satisfactory. We were well impressed when he was here for an interview and we believe he will fill the position very satisfactorily. We very much appreciate your having brought us in touch with him. The form covering his application for position which you gave_____* at the time he called on you is enclosed herewith."

* The visitor referred to is the vice-president of a large and important organization who visited Personnel Service February 15 last to inspect our records; no advertisement was placed. The writer of the letter is the president of the company and we are gratified to learn another man has been placed through these channels.

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